



SINGER®

Instruction Manual and Parts List

Zigzag Sewing Machine

20U- 109 / 109C

112 / 112C

309

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1. Safety Instructions

1.1. Important Safety Instructions

When using this machine, basic safety procedures must be followed. Read with attention all instruction before using the machine. When using the machine, understand all basic safety instructions which are not limited to the items following. Read all instructions, take care of this manual, and use it as reference when necessary.

- Before running the machine, make sure all relevant safety specifications are adequate to specifications and technical rules in your country.
- The machine should not be run without its safety devices.
- The machine should only be operated by properly trained personnel.
- For your safety, goggles must be used running the machine.
- Turn off or unplug the machine when the following situations arise:
 - Passing the thread by the needle or replacing the bobbin or looper.
 - Replacing the needle, presser foot, throat plate, feed dog and sliding plate.
 - When the machine is in maintenance.
 - When the operator is not running the machine.
- In case of lubricant oil contact with the eyes or skin, washed the surface with plenty of icy water with a generous amount of cold water. In case of ingestion, seek medical help immediately.
- Repair, fitting or maintenance should only be performed by properly trained personnel.
- Maintenance and repair on electric equipment should only be made by qualified personnel. If any electric device is damaged, the machine should be immediately stopped.
- Before starting the machine in full running, a test must be conducted to assure that machine and operator are able to perform the task.
- The machine should not be placed next to a sound source as an ultrasonic welding machine and other equipment.
- The machine should only be run with the proper electric cable and connectors, and also the adequate grounding.
- The machine should only be used to sew materials as indicated in its instruction manual, and indications of use should be followed.
- Singer will not be held responsible for any damage caused by unauthorized changes in the products.

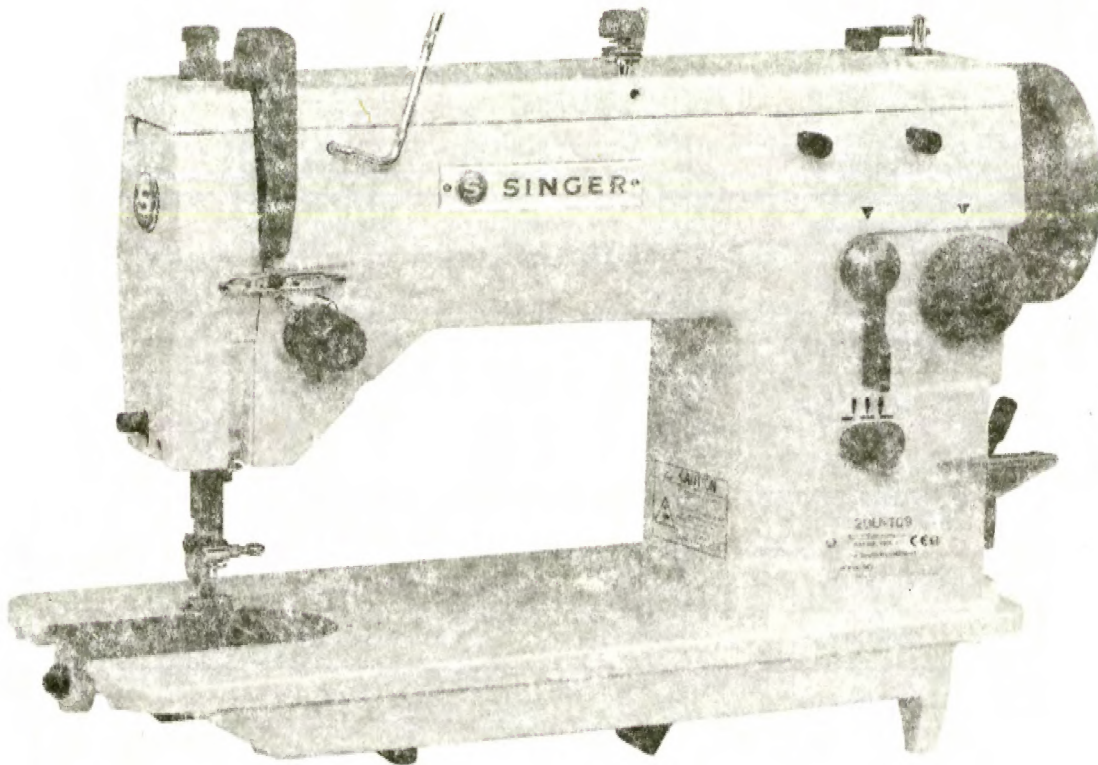
1.2. Safe Operation

- To avoid the risk of electric shock, do not open the motor wiring box and do not touch the components assembled inside the wiring box.
- To avoid injuries do not run the machine without the belt cover or in case any other safety device is removed.
- To avoid possible injuries keep fingers, head and clothes far from wheel, belt and motor when the machine is running. Nothing should be placed near those parts.
- To avoid injuries never put your fingers next to the rotating hook and the thread take-up lever cover when the machine is running.
- The rotating hook whirls at high speed while the machine is running. To avoid hand injuries, keep them away from the rotating hook while the machine is running, turn off the machine to replace the bobbin.
- To avoid possible injuries be careful when putting down or lifting the machine head.
- To avoid accident in case of a sudden start of the machine always turn it off when laying it down, or remove the belt cover and the belt.
- If you machine is equipped with a servomotor, it does not make noises while being driven. To avoid a possible accident caused by an unexpected start, be sure the machine is turned off.
- To avoid electrical shock, do not run the machine without proper grounding.
- To minimize the risk of accidents or damage in electric components caused by electric discharge turn the machine off before unplugging it.
- Clean the machine periodically.

2. Product Description and Machine Specification

2.1. Product Description

Zigzag Sewing Machine



2.2. Machine Specification

Table 1 – Machine Specification

	Singer model		
	20U-109 / 109C	20U-112 / 112C	20U-309
For sewing	Light to medium		
Stitch type	Plain zigzag (Straight stitch)		3-step zigzag
Max. speed ¹	2,500 rpm	2,000 rpm	2,500 rpm
Max. stitch bight	9.0 mm	12.0 mm	9.0 mm
Max. stitch length	5.0 mm		
Needle bar stroke	34.8 mm		
Presser bar lift (manual)	6.35 mm		
Presser bar lift (knee lifter)	9.0 mm		
Needle catalog (needle system)	Cat. 1910-05 (135x9)		
Needle size	See Section 3.5 "Needle and Thread"		
Machine pulley	74.0 mm effective dia. for v-belt		
Oil	Singer Oil		
Workspace (w x h)	211 x 130 mm		
Bedplate dimensions	399.0 mm x 178.0 mm		
Net weight (head only)	21.0 kg		
Gross weight (with accessories)	25.0 kg		
Noise ²	Lower than 76 dBA at 1,600 spm		

¹ Maximum speed will vary depending on fabric, threads and sewing condition

² Noise measurement according to DIN 4563-45-A-1

2.3. Motor, Motor Pulley and V-Belt Specifications

- ½ HP (400W) 4-pole (medium speed) clutch motor
- M type v-belt

Table 2 – Machine Speed vs. Motor Pulley Diameter

Machine Speed [spm]			Motor Pulley Diameter [mm]	
20U-109 / 109C	20U-112 / 112C	20U-309	50 Hz	60 Hz
2,500	-	2,500	130	105
2,000	2,000	2,000	105	85
1,800	1,800	1,800	90	75
1,500	1,500	1,500	80	65

2.4. Relationship between Zigzag Bight and Maximum Speed

Table 3 – Relationship between zigzag bight and maximum speed

Machine Class	20U-109 / 109C / 309		20U-112 / 112C	
Zigzag bight	0 ~ 5.0 mm	5.0 ~ 9.0 mm	0 ~ 5.0 mm	5.0 ~ 12.0 mm
Max. speed	2,500 rpm	2,000 rpm	2,000 rpm	1,800 rpm

3. Setup and Adjustment Instructions

3.1. Table Cut-Out Drawing

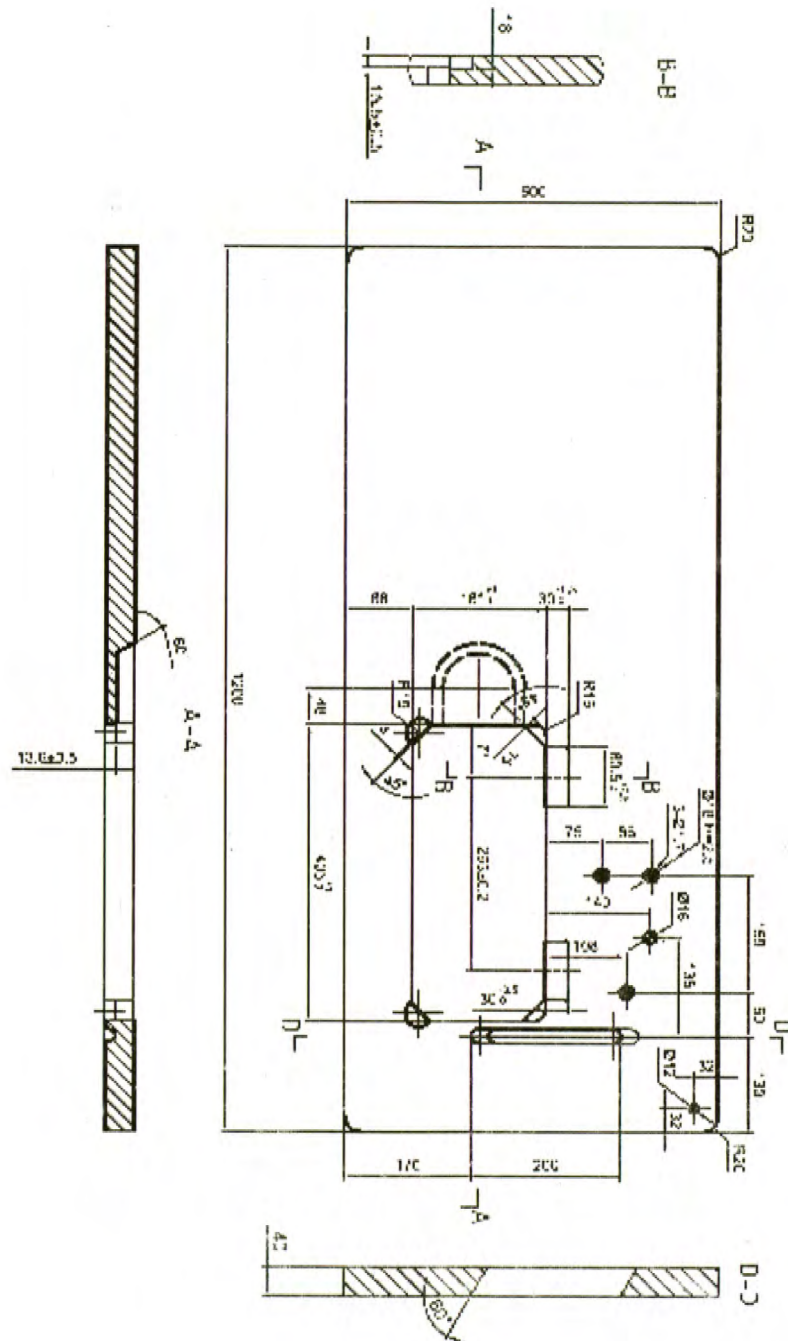


Figure 1

3.2. Oil Reservoir Installation

The oil pan should be fixed on the side of the machine table groove by using four nails (Figure 2).

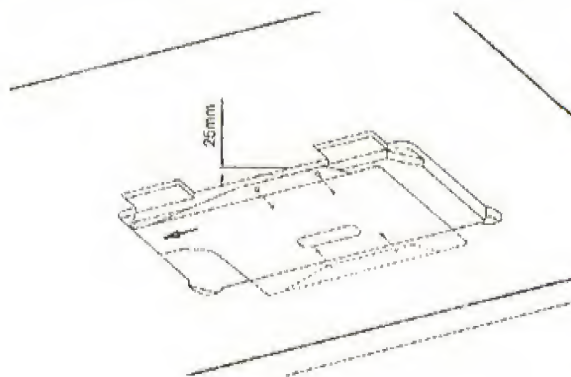


Figure 2

Two rubber seats and two rubber corners for supporting the head portion should be fixed on the extended portion of the table by using nails, and the other two rubber cushion on the hinge side should be fixed on grooves by using nails too (Figure 3).

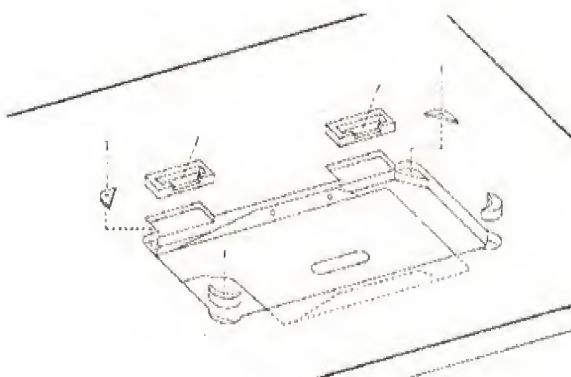


Figure 3

Two hinges fit into the hole in the machine bed, and the machine head fitted the table hinge's rubber, before the machine head is placed to the cushions on the four corners of the table (Figures 3 and 4).

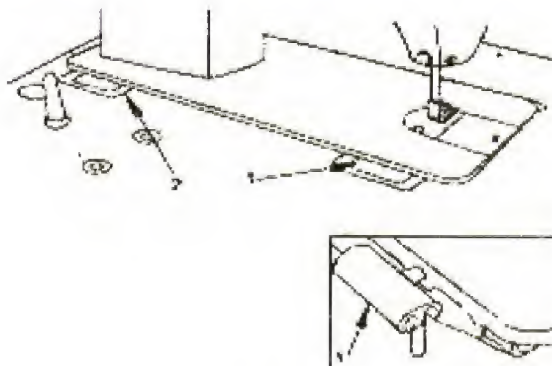


Figure 4

3.3. Belt Cover Installation

Above table surface

Align the belt guard so that hand wheel and v-belt move freely, then screw it down in this position (see Figure 5).

Below table surface

Install belt guard so that motor pulley and v-belt will rotate freely without interference.

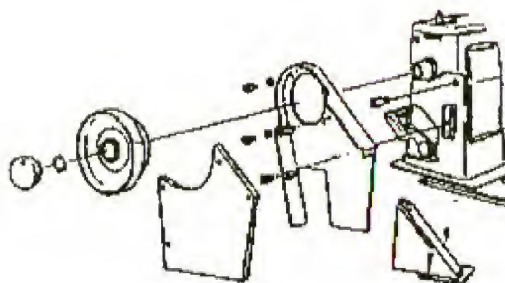


Figure 5

Caution:

- Switch off the machine.
- Set sewing head upright again using both hands.
- Danger of crushing between sewing head and table top.
- For your safety, do not run the machine without the belt cover.

3.4. Lubrication

Rotating hook and area under throat plate.

Turn hand wheel over toward you until oil hole in rotating hook appear in sight.

Apply one or two drops of oil to the oil hole (see Figure 6).

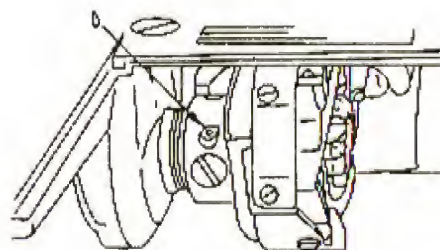


Figure 6

Loosen and remove screws and remove face plate by sliding it downward.

Remove screws and lift off arm top cover.

Clean and oil the places indicated with 'O'.

Apply sufficient oil to all oil felt shown in Figure 7

Apply a small amount of grease to gear teeth indicated with letter 'B'.

Also apply a drop of oil to all other oiling points shown

Keep oil pad 'A' under arm top cover saturated with oil.

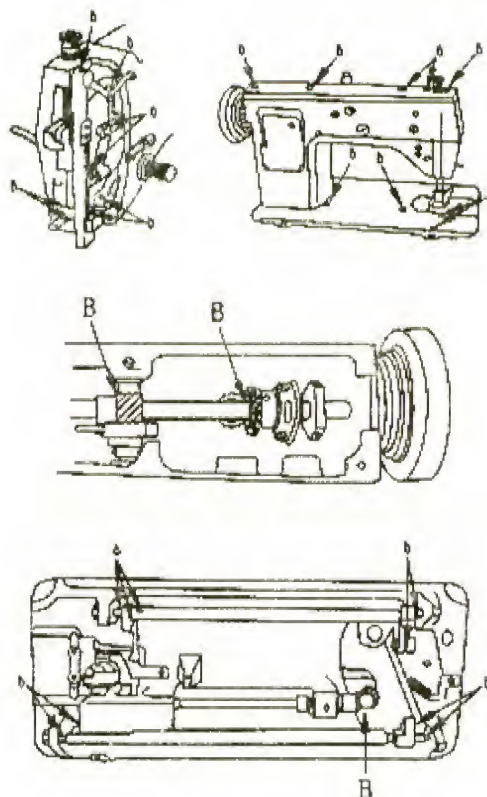


Figure 7

Caution:

- Switch off the machine.
- Set sewing head upright again using both hands.
- Danger of crushing between sewing head and table top.
- For your safety, do not run the machine without the belt cover.

Important:

When you first operate your machine after set up or after an extended period of disuse, oil the machine and run your machine at 1,000 to 1,500 spm for about 10 minutes for the purpose of break-in.

3.5. Needle and Thread

Selection of the proper needle depends not only on the machine model, but also on the material and thread used. For selection of proper needle and thread sizes to be used on the various machine models please refer to the table below

Model	20U-109 / 109C / 112 / 112C / 309		
Application	Light weight materials	Medium weight materials	Mid-heavy weight materials
Max. thread size (Nm)-Synthetic*	120	60	30
Needle size (1/100mm)	10 (60)	12 ~ 16 (80 ~ 100)	18 ~ 19 (110 ~ 120)
Needle catalog (Needle system)	1910-05 (135x9)		

* or an equivalent size of other types of thread

Caution:

- The power supply should be cut off before attaching the needle.

3.6. Inserting the Needle

Use needle Cat. No. 1910-05 needle system (135x9) only.

Raise needle bar to its highest position by turning hand wheel toward you.

Loosen needle set screw '1' (see Figure 8) Insert the needle in the needle bar and push it up as far as it will go.

Make sure its long groove faces toward the front. Tighten needle set screw '1' securely.

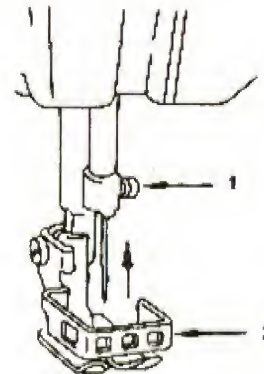


Figure 8

Caution:

- Switch off the machine.
- Do not operate the machine without the finger guard '2' (see Figure 8).

3.7. Bobbin Case Removal

Open bed slide.

Raise latch '1' (see Figure 9).

Lift out bobbin case '2' (see Figure 9).

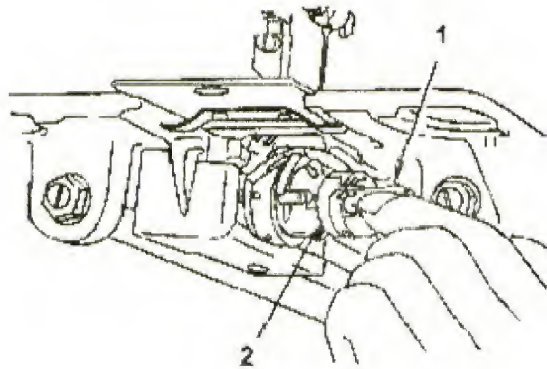


Figure 9

Caution:

- Switch off the machine.
- Do not operate the machine with throat plate left open.

3.8. Bobbin Winding

Stop motion of needle by loosening stop-motion screw '1', Figure 10. Hold hand wheel with left hand and turn stop-motion screw toward you with right hand.

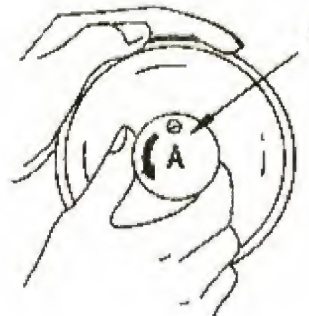


Figure 10

Place bobbin on bobbin winder spindle '3'. Figure 11, pushing it on as far as it will go.

Pre tension '1' (see Figure 11)

'+' More tension

'-' Less tension

Push latch '2' in the direction indicated by arrow 'A', then start the machine (see Figure 11).

Bobbin winder spindle '3', rotate in the direction indicated by arrow 'B' (see Figure 11).

To adjust the amount of thread on bobbin, loosen screw '4' on latch '2' and swing the latch '2' away from you or toward you, as required.

For more thread on bobbin, swing latch '2' away from you.

For less thread on bobbin, swing latch '2' toward you. If thread winds unevenly on bobbin, loosen screw '5' and move pre-tension '1' up or down, as required, and tighten screw '5'.



Threading the pre-tension for bobbin winding

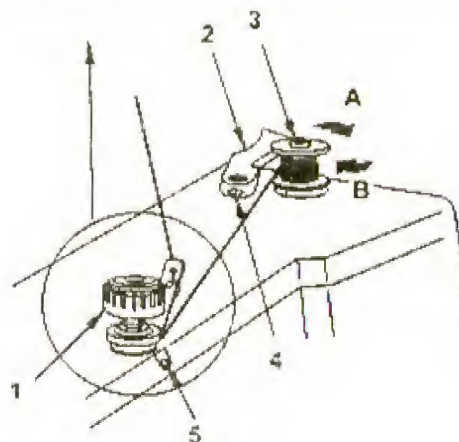


Figure 11

Caution:

- Do not guide or hold thread when winding the bobbin.

3.9. Bobbin Case Threading

Hold bobbin case so that thread unwinds in the direction shown in Figure 12, and put bobbin in bobbin case.

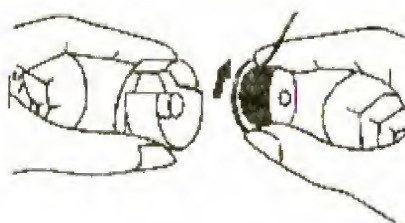


Figure 12

Put thread into notch '1', and draw it under tension spring '2' (see Figure 13)



Figure 13

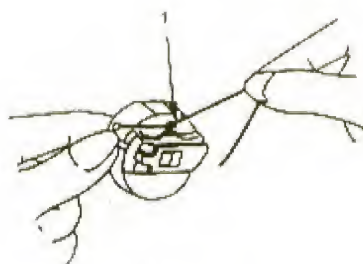


Figure 14

Draw thread out from slot '2' on end of spring '1', (Figure 14) and pass it through bobbin case thread guide '1', Figure 15.

Allow about 4 inches of thread to hang freely from bobbin.

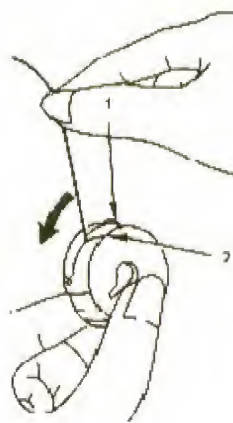


Figure 15

Note:

- When straight stitching, a better result can be obtained if bobbin thread is not threaded through bobbin case thread guide '1' of Figure 15.

3.10. Bobbin Case Replacement

Hold bobbin case by latch '1' and place it on spindle of bobbin case holder '2' so that position finger '3' enters notch '4' at right of bobbin case holder (see Figure 17)

Release latch and press bobbin case firmly in place to assure proper position. Close bed slide

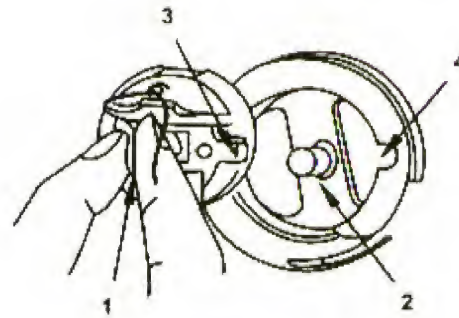


Figure 17

Caution:

- Switch off the machine.
- Do not run machine without closing bed side. Danger of injury!

3.11. Machine Threading

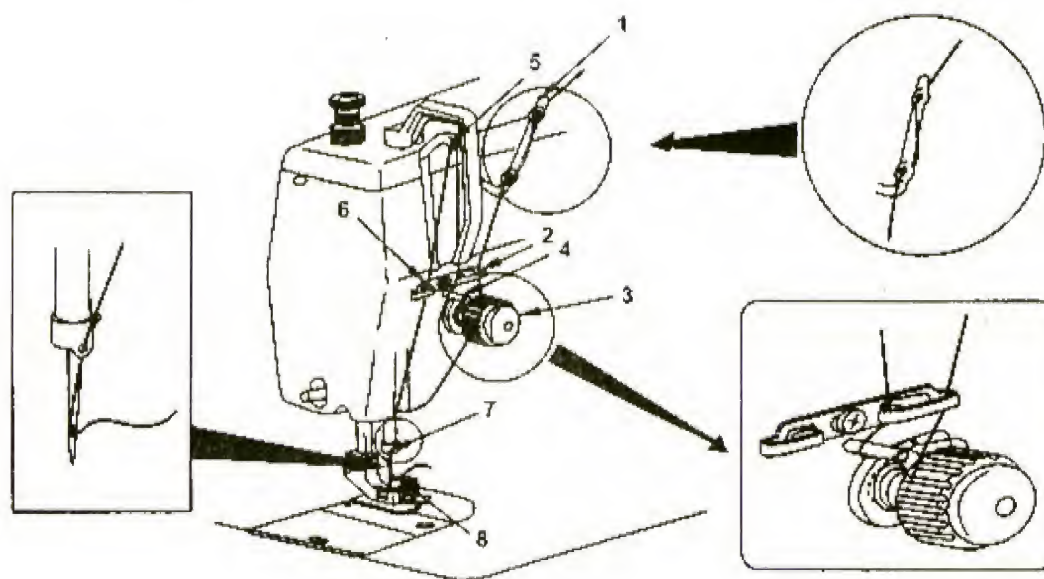


Figure 17

Lead thread from the thread unwinder through all the threading points in the order shown in Figure 17

Thread the needle from front to back, as show in Figure 17

Draw about 3 inches of thread through eye of needle.

Caution:

- Switch off the machine.
- Do not operate the machine without thread take-up guard.
- Do not operate the machine without finger guard.

3.12. Stitch Length Adjustment

Regulating the stitch length:

To regulate the stitch length, turn feed regulating dial '1' Figure 18, toward left or right as required.

'+' to lengthen

'-' to shorten

Changing to reverse feed:

Push lever '2' Figure 18 down for reverse feed and release for forward feed.

To regulate the reverse stitch length, turn thumb screw '3' Figure 18, toward left or right as required.

'+' to lengthen

'-' to shorten

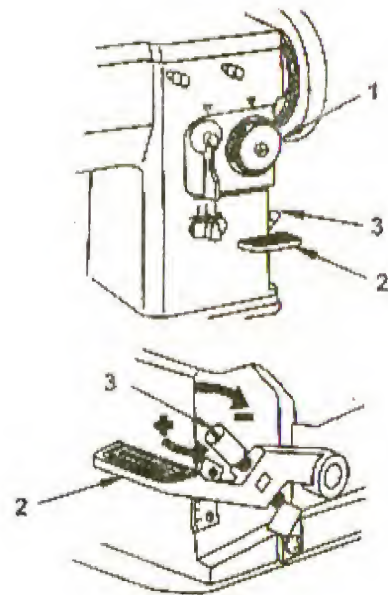


Figure 18

3.13. Presser Foot Pressure Adjustment

To regulate the presser foot pressure, turn knurled thumb screw '1', Figure 19, toward left or right as required.

'+' more pressure

'-' less pressure

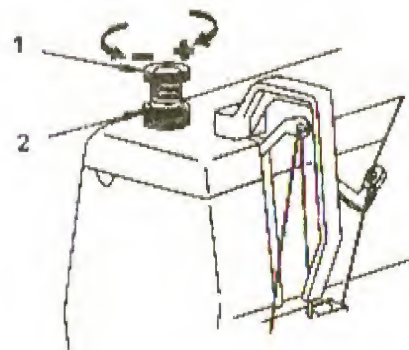


Figure 19

3.14. Needle Thread Tension Adjustment

Regulate needle thread tension with tension regulating knob '1', Figure 20.

'+' more tension

'-' less tension

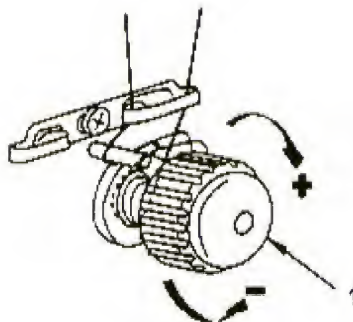


Figure 20

3.15. Take-up Spring Regulation

Using a screwdriver in slot of stud '1', Figure 21, regulate take-up spring tension by turning stud '1', as required.

'+' More tension

'-' Less tension

To adjust the amount of take-up spring movement, loosen screw '2'. Figure 21, and set take-up spring height by turning the entire tension assembly '3' toward left or right, as required. Securely tighten screw '2'.

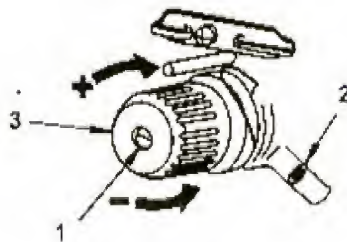


Figure 21

3.16. Bobbin Thread Tension Adjustment

Regulate bobbin thread tension with tension regulating screw '1', Figure 22.

'+' More tension

'-' Less tension



Figure 22

3.17. Needle Position Selector

Left, Center and Right needle position settings are available for placement of both straight and zigzag stitching (see Figure 23).

To position, push lever in and move to desired setting.

Do not make any needle position adjustment while the needle is in the fabric.

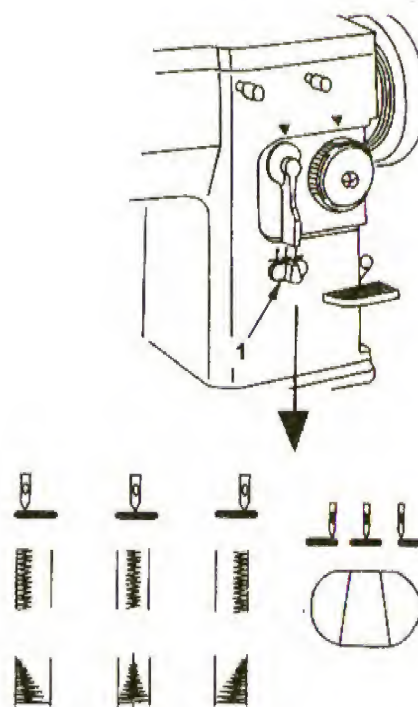


Figure 23

Caution:

- Switch off the machine.

3.18. Stitch Width Regulator

The width of zigzag stitch is controlled with the spring biased stitch width regulating lever '1', Figure 24.

Maximum zigzag width:

20U-109 / 109C / 309: 9.0 mm

20U-112 / 112C: 12.0 mm

Do not make any needle position adjustment while the needle is in the fabric.

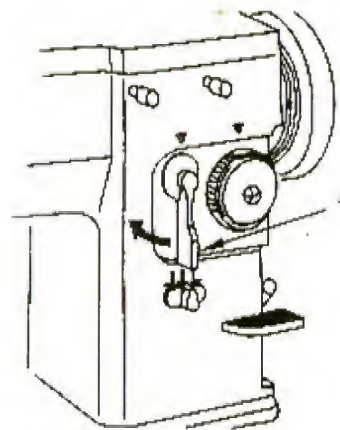


Figure 24

3.19. Zigzag Stitch Width Control

To obtain minimum to maximum width (20U-109, 109C, 309: 9mm or 20U-112, 112C: 12mm) zigzag stitches, first loosen thumb screw '2' to permit the stitch width regulator '3' to return to its zero position 'A' and retighten thumb screw '2', according to Figure 25.

Then loosen thumb screw '1', Figure 25, turn stitch width regulator '3' clockwise as far as it will go and while holding the regulator '3' in this position (see 'B', Figure 25), retighten thumb screw '1'.

You can now regulate the stitch width regulator within the range of zero to maximum.

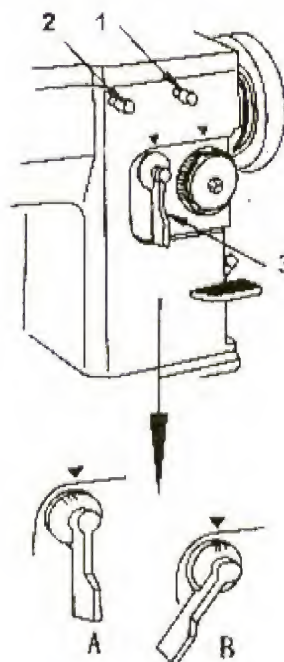


Figure 25

3.20. Needle Bar Frame Clamp Device

When straight stitching, a better sewing result can be obtained by locking the needle bar frame immovable with the clamping device (see Figure 26).

'A' Clamp

'B' Release

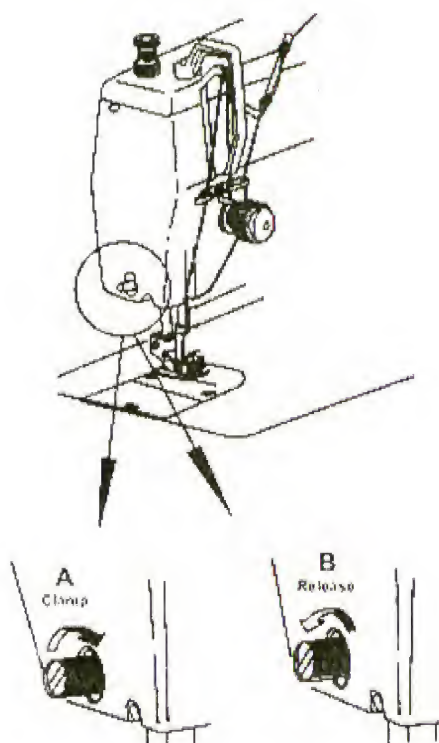


Figure 26

Caution:

- Switch off the machine.

3.21. Straight and Zigzag Stitch Fitting

General Purpose Presser Foot '1', Throat Plate '2' and Feed Dog '3' as shown in Figure 27, are used for straight and zigzag stitching.

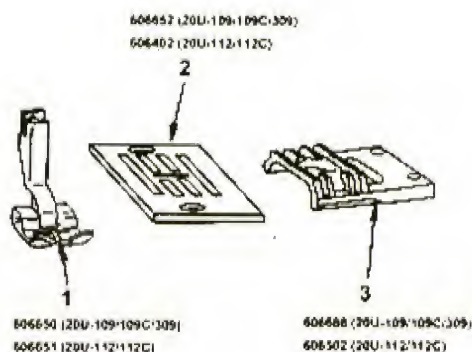


Figure 27

Straight Stitch Presser Foot '1', Throat Plate '2' and Feed Dog '3' as shown in Figure 28, are used for straight stitching only.

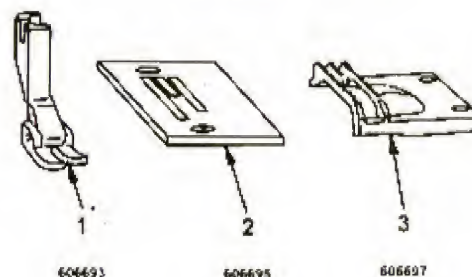


Figure 28

Open bed slide, then remove throat plate, (Use screwdriver '3' Figure 29, furnished with machine for removal and replacement of throat plate and feed dog.)

Using a screwdriver '2' remove bed plate '1' and remove feed dog '4' (see Figure 29).

To replace general purpose or straight stitch feed dog, fasten feed dog to machine temporarily and replace general purpose or straight stitch throat plate. Set feed dog correctly in position so that it will not hit the edges of feed dog slots in the throat plate.

Replace bed plate and press it firmly in place.

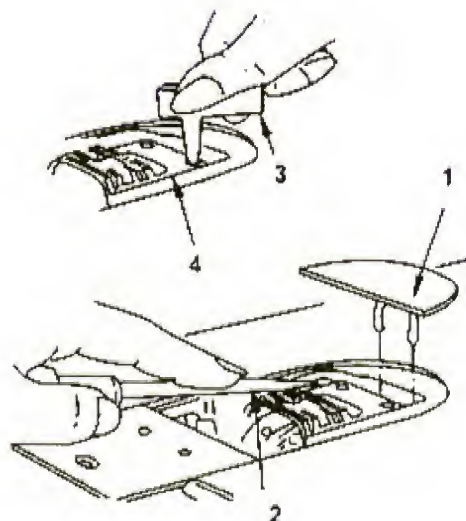


Figure 29

Caution:

- Switch off the machine.

3.22. Spool Cap Usage

When using a reel type thread spool, fit the spool cap '1' supplied with the machine onto the thread spool '3' (see Figure 31).

Set height of spool rest so there is approximately 2.0 mm clearance between top end of spool pin and the tip of the slotted spigot of the spool cap (see Figure 31)

The spool cap should never be fitted on the spool pin '5'. Forcing it onto the spool pin may result in breaking the slotted spigot of the spool cap (see Figure 31).

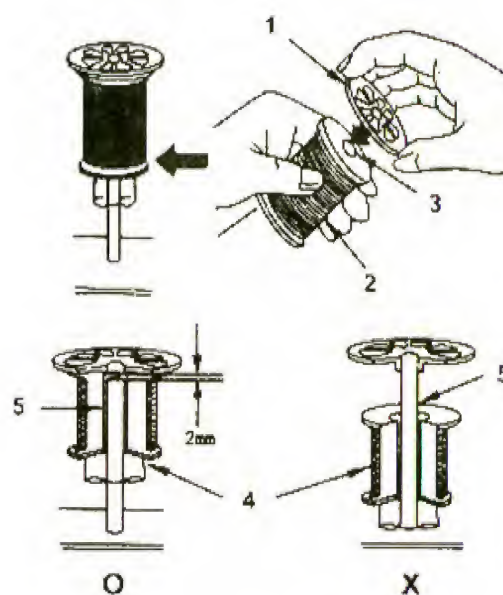


Figure 31

3.23. Anti-Spill Sleeve Usage

When using synthetic threads that easily spill off the cone '1', slip the anti-pill sleeve '2' furnished with the machine over the thread from the bottom of cone '1' leaving the thread end to hang free at the top of anti-spill sleeve '2' as shown in Figure 32

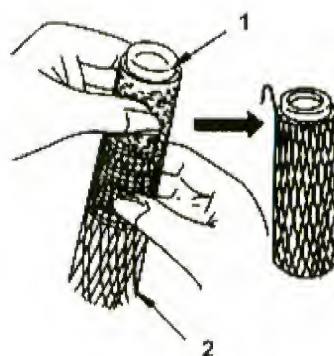


Figure 32

3.24. Knee Lifter Installation

Knee lifter mounting

Fasten knee lifter bracket '1' to underside of table '2' 145mm from table cut-out as shown in Figure 33

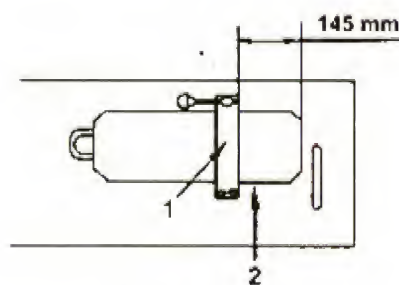


Figure 33

Knee operating presser foot lift

Bell cranks '1' and '2' shown in Figure 34 are fastened to the underside of the bed bell crank '1' is used for lifting and lowering the presser foot with knee, and bell crank '2' is used for controlling the stitch width.

To raise or lower the presser foot with knee, loosen screw '4' holding the knee lifter shaft arm '3' and move knee lifter shaft arm '3' just under the bell crank '1', and firmly tighten screw '4'.

Loosen the lock nut holding screw '7' and turn screw '7' as required, so that the bent end '6' of knee lifter shaft arm '3' will be almost horizontal when knee lifter knee plate '5' is pushed as far as it will go in the direction indicated with arrow 'A', then firmly tighten the lock nut.

With knee lifter shaft arm '3' set in position as described above, loosen screw '8' and move knee lifter shaft arm '3' up or down as required, so that height '10' from its bent end '6' to bracket '9' is 64 mm.

Raise presser foot '12' with presser foot lifter '11'. Then loosen the lock nut holding screw '14' and turn screw '14' as required, so that knee lifter knee plate '5' when pushed in the direction indicated with arrow 'B', will stop at a point (presser foot '12' raised approx. 9 mm from throat plate '13' surface) where presser bar lifter '11' will drop down from its raised position when presser bar is lifted a little higher than its normal up position. Then firmly tighten the lock nut.

When knee lifter knee plate '5' is pushed in the direction indicated with arrow 'B', the presser foot '12' will rise and when knee plate '5' is released, presser foot '12' will be lowered.

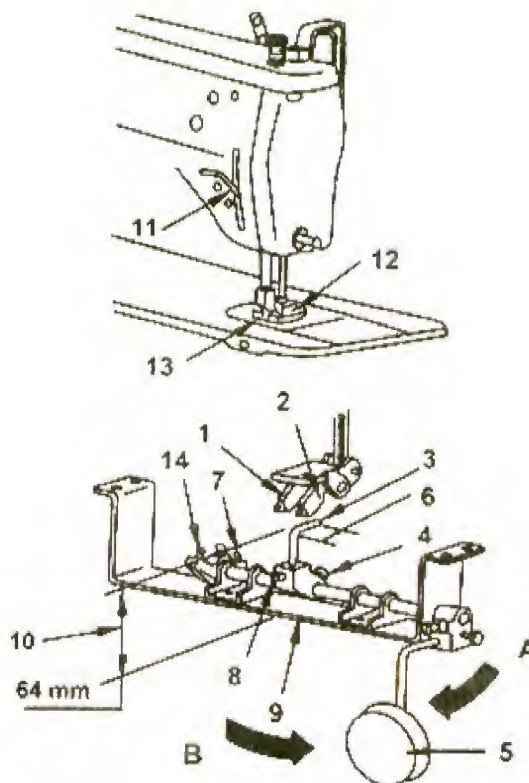


Figure 34

Caution:

- Switch off the machine.
- Set sewing head upright again using both hands.
- Danger of crushing between sewing head and table top

Knee operating stitch width control:

Bell cranks '1' and '2' shown in Figure 35 are fastened to the underside of the bed. Bell crank '1' is used for lifting and lowering the presser foot with knee and bell crank '2' is used for controlling the stitch width.

To control the stitch width with knee, loosen screw '4' holding the knee lifter shaft arm '3' and move knee lifter shaft arm '3' just under the bell crank '2' and firmly tighten screw '4'.

Loosen the lock nut holding screw '7' and turn screw '7' as required, so that the bent end '6' of knee lifter shaft arm '3' will be almost horizontal when knee lifter knee plate '5' is pushed as far as it will go in the direction indicated with arrow 'A'. Then firmly tighten the lock nut.

With knee lifter shaft arm '3' set in position as described above, loosen screw '8' and move knee lifter shaft arm '3' up or down as required, so that height '10' from its bent end '6' to bracket is 67 mm.

Loosen stitch width regulating plate thumb screws '11' and '12' so that stitch width regulator '13' can be moved from zero to maximum stitch width. (20U-109 / 109C / 308: 9mm or 20U-112 / 112C: 12mm). Loosen the lock nut holding screw '14' and turn screw '14' as required, so that knee lifter knee plate '5' when pushed in the direction indicated with arrow 'B', will stop at the maximum stitch width position of stitch width regulator '13'. Then firmly tighten the lock nut.

Stitch width will become wider when knee lifter knee plate '5' is pushed in the direction indicated with arrow 'B' and will become smaller when knee plate is released.

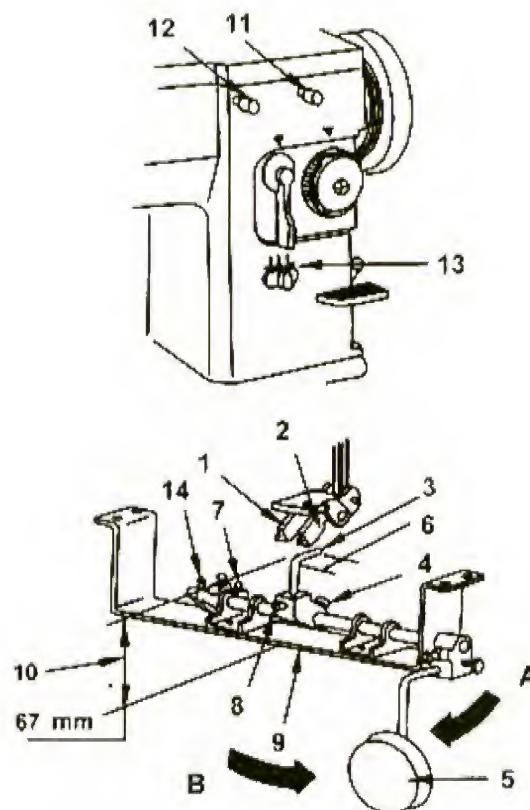


Figure 35

Caution:

- Switch off the machine.
- Set sewing head upright again using both hands.
- Danger of crushing between sewing head and table top

3.25. Fittings for Buttonhole Stitching

Buttonhole Foot '1', General Purpose Throat Plate '2' and Feed Dog '3' as shown in Figure 36 are used for buttonhole stitching.

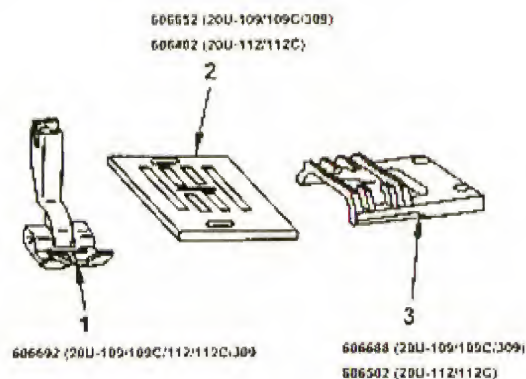


Figure 36

3.26. Fittings for Hem Sewing

Hemmer Foot '1', Straight Stitch Throat Plate '2' and Feed Dog '3' as shown in Figure 37 are used for hem sewing.

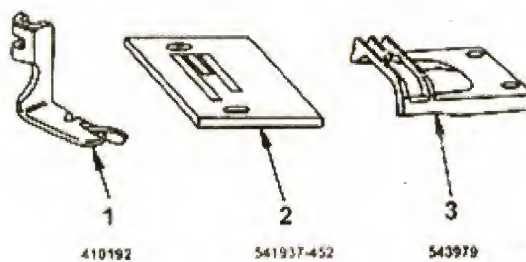


Figure 37

3.27. Fittings for Zipper and Cord Sewing

Zipper Foot '1', General Purpose '2' or Straight Stitch '3'

Throat Plate and General Purpose '4' or Straight Stitch '5'

Feed Dog as shown in Figure 38 are used for zipper and cord sewing.

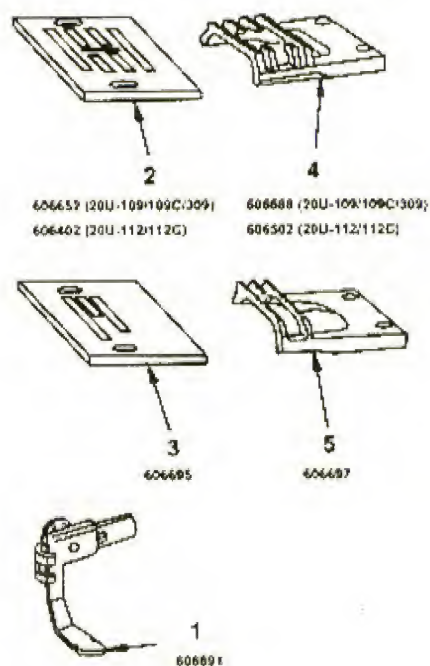


Figure 38

Caution:

- Switch off the machine.

4. Maintenance

4.1. Machine Head Cleaning

Clean the machine periodically with a soft and dry cloth to remove the excess of dust on the machine head. Do not use any kind of lacquer thinner to wipe the surface.

4.2. Lubrication

If the machine was idle for a long time, lubricate the machine according to the instructions of topics 3.4.

4.3. Safety Inspection

Check periodically if all safety devices are properly installed and adjusted.

Check if all fixing and supporting screws of the machine head are adequately tighten.

Check if the v-belt is not excessively worn and if it has the right tension.

Check if there is no overheating in the electrical motor and check if the power cord and plug are not damaged.

5. Troubleshooting

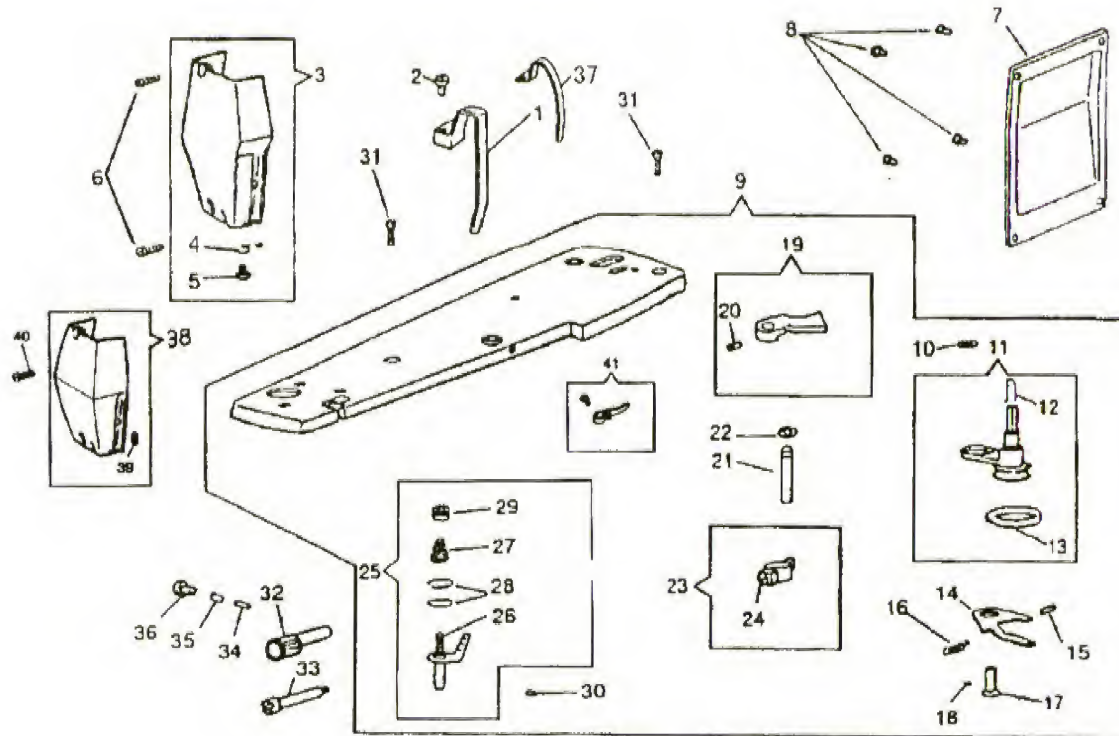
Whenever sewing difficulty is encountered, check and make adjustments as follows.

Problem	Possible Causes	Possible Solutions
Needle thread breaks	1. Is machine properly threaded?	1. Correct needle threading
	2. Are thread guides or tension disc area lint-free?	2. Remove lint & fluff in bobbin case & hook
	3. Is needle-thread tension too tight?	3. Adjust needle thread tension
	4. Is needle bent or has a blunt point?	4. Insert new needle
	5. Is needle inserted correctly?	5. Insert needle correctly
	6. Is needle the correct size for thread & fabric?	6. Select proper needle size & thread
	7. Is thread free of slubs & knots?	7. Remove slubs & knots
Bobbin thread breaks	8. Is bobbin threading correct?	8. Correct bobbin threading
	9. Is thread tangled or caught?	9. Untangle thread from bobbin case & hook
	10. Is thread tension correct?	10. Adjust needle & bobbin case thread tension
	11. Does bobbin rotate smoothly?	11. Check whether bobbin thread is wound correctly
Stitches skip	12. Is needle inserted correctly?	12. Insert needle correctly
	13. Is needle bent or has blunt needle point?	13. Insert new needle
	14. Is size of needle & thread suitable for fabric?	14. Select proper needle size & thread
	15. Is threading correct?	15. Correct needle threading
Needle breaks	16. Is needle properly inserted?	16. Insert needle correctly
	17. Is needle bent?	17. Insert new needle
	18. Is needle the correct size for the fabric?	18. Select proper needle & thread for fabric
	19. Is needle clamping screw loose?	19. Tighten needle set screw
	20. Is the fabric pulled while sewing?	20. Do not pull fabric while sewing
Fabric fails to feed	21. Is feed regulating dial properly adjusted?	21. Lengthen stitch length by feed regulating dial
	22. Is presser foot pressure adjusted properly?	22. Adjust correct presser foot pressure
Fabric puckers	23. Is needle threading correct?	23. Correct needle threading
	24. Is needle point blunt?	24. Insert new needle
	25. Is thread tension too tight?	25. Adjust needle tension properly
Rotating heavy noise	26. Is there any lint or fluff on feed dog?	26. Remove lint & fluff from feed dog
	27. Is there any lint in rotating hook?	27. Remove lint & fluff from rotating hook
Machine fails to start	28. Are electrical plugs properly connected?	28. Turn on power switch
	29. Is power & light switch turned on?	29. Connect plug to power source

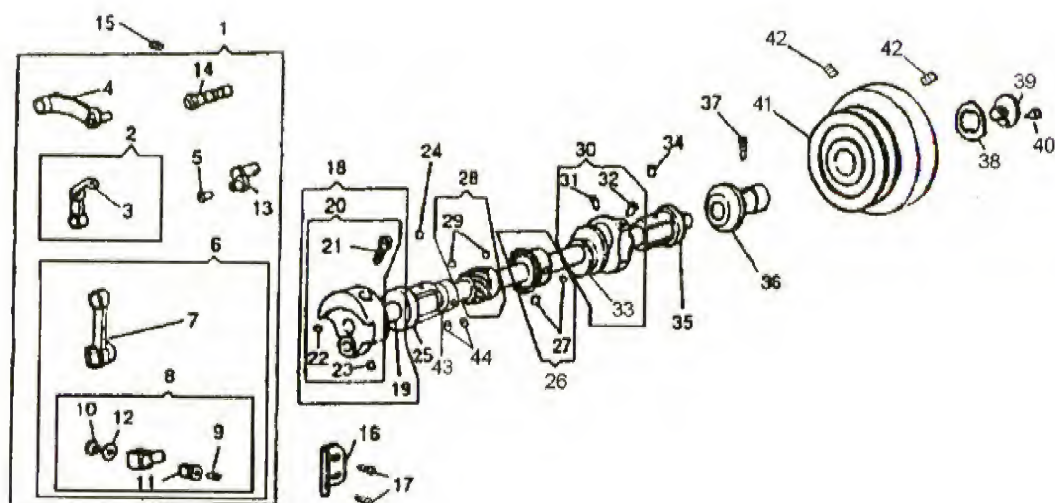
*** If you still have difficulty in sewing even after making adjustments, contact your nearest Service Center.

6. Parts List

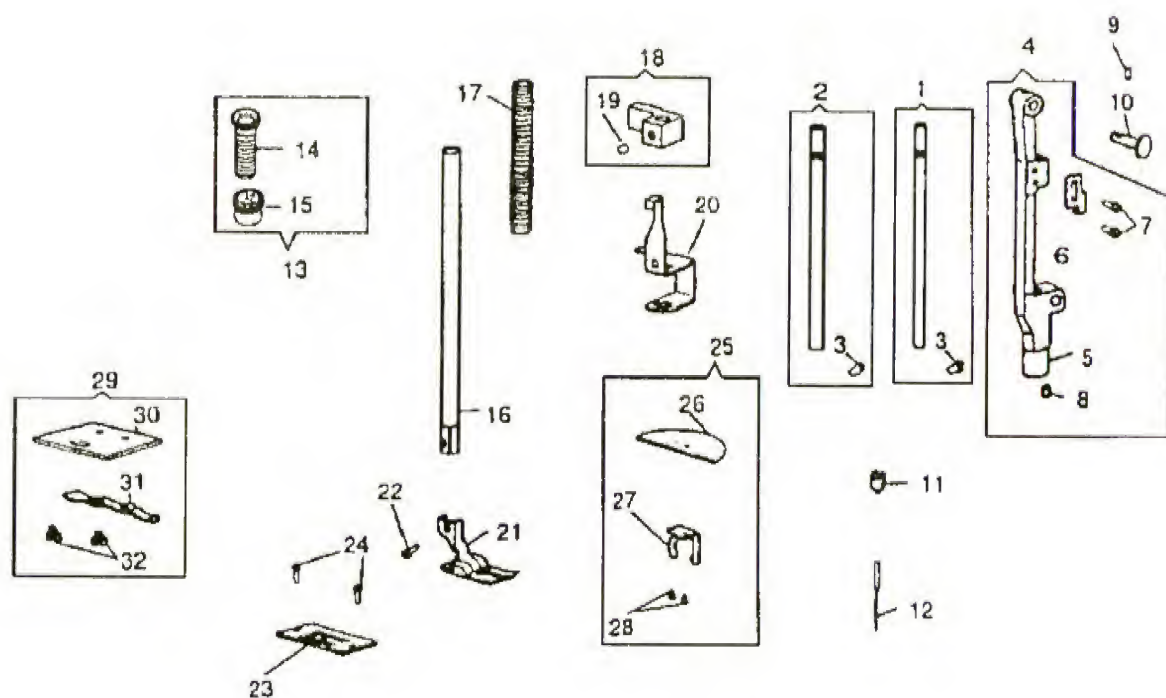
6.1. Face Plate, Arm Top Cover and Arm Side Cover Components



No.	Part No.	Description	Quantity				
			109	109C	112	112C	309
1	554113-383	Thread Take-up Guard	1	1	1	1	
2	606407	Take-up Guard Screw	1	1	1	1	1
3	606395	Face Plate Assembly	1	1	1	1	
4	606632	Thread Guide	1	1	1	1	
5	606633	Thread Guide Screw	1	1	1	1	
6	606634	Screw	2	2	2	2	
7	554118-385	Back Cover	1	1	1	1	1
8	606635	Screw	4	4	4	4	1
9	606433	Arm Top Cover Assembly	1	1	1	1	
	601433	Arm Top Cover Assembly					1
10	606636	Thrust Washer	1	1	1	1	1
11	606454	B/W Bracket Assembly	1	1	1	1	1
12	606637	Spring	1	1	1	1	1
13	606638	Friction O-ring	1	1	1	1	
	GO207-8	Friction O-ring					1
14	606452	B/W Regulating Plate	1		1		1
15	606453	Spring	1		1		1
16	606449	Spring	1		1		1
17	606451	Hinge Stud	1		1		
	GS272-8	Hinge Stud					1
18	606439	Set Screw	1		1		1
19	550032	B/W Lever Assembly	1		1		1
20	544208-005	B/W Lever Set Screw	1		1		1
21	606447	B/W Lever Stud	1		1		1
22	606448	B/W Lever Stud Ring	1		1		
	GZ202-8	B/W Lever Stud Ring					1
23	606446	B/W Regulator Assembly	1		1		
24	544208-005	B/W Regulator Screw	1		1		
25	606639	B/W Tension Assembly	1		1		
	GR482/6-8	B/W Tension Assembly					1
26	606440	Bobbin Winder Tension Stud	1		1		1
27	606442	Bobbin Winder Tension Spring	1		1		1
28	606441	Bobbin Winder Tension Disc	2		2		1
29	606443	Tension Nut	1		1		
	GL162-8	Tension Nut					1
30	606439	Screw	1		1		1
31	606602	Arm Top Cover Screw	2		2		2
32	606398	Eccentric Lock	1		1		
	GT150-8	Eccentric Lock					1
33	606397	Eccentric Screw	1		1		1
34	554128	Stopper pin	1		1		1
35	554144	Stopper Spring	1		1		1
36	544212-001	Stopper Screw	1		1		1
37	GK146-8	Stitch-staff shield					1
38	GR406/8	Panel assembly					1
39	GR232-8	Panel thread hook					1
40	GS132-8	Panel screw					2
41	GR480/2-8	Volume adjusting plate assembly					1

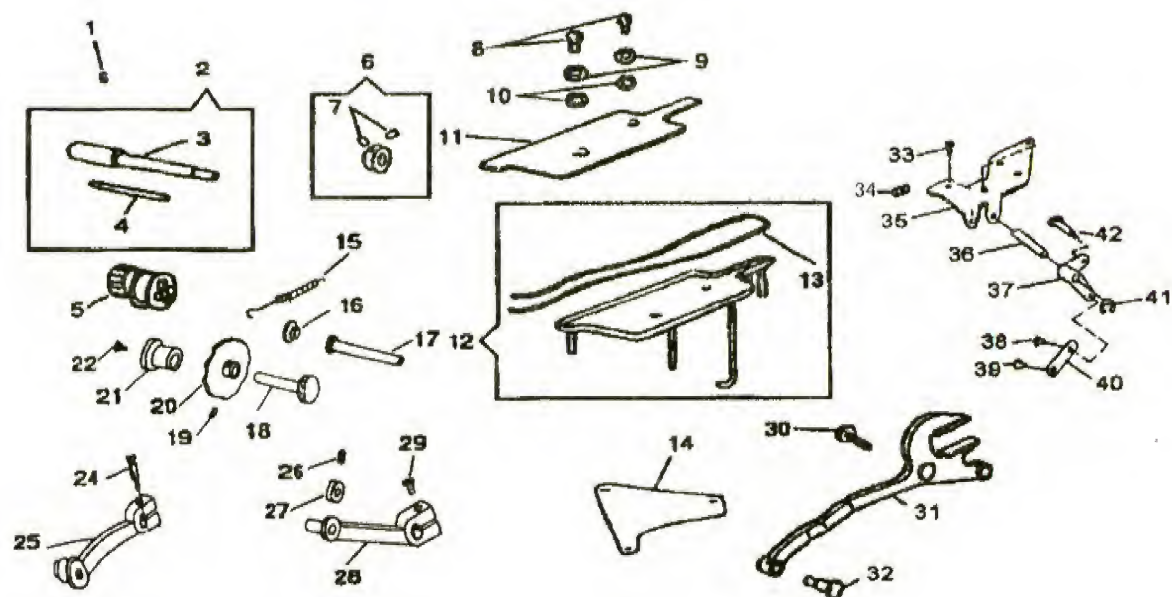
6.2. Thread Take-up, Arm Shaft and Handwheel Components

No.	Part No.	Description	Quantity				
			109	109C	112	112C	309
1	606640	Take-up Assembly	1	1	1	1	1
2	606475	Take-up	1	1	1	1	1
3	606474	Take-up Eyelet	1	1	1	1	1
4	606641	Take-up Lever Link	1	1	1	1	1
5	606471	Conn. Link Cap Screw	1	1	1	1	1
6	606642	N/B. Connecting Link Assembly	1	1	1	1	1
7	606472	N/B. Connecting Link	1	1	1	1	1
8	606466	Connecting Stud Assembly	1	1	1	1	1
9	606468	Set Screw	1	1	1	1	1
10	606464	Hinge Pin Screw	1	1	1	1	1
11	606467	Hinge Pin	1	1	1	1	1
12	606465	Pin Washer	1	1	1	1	1
13	606473	Take-up Crank	1	1	1	1	1
14	606643	Hinge Stud	1	1	1	1	1
15	606420	Set Screw	1	1	1	1	1
16	606469	Guide	1	1	1	1	1
17	606444	Screw	2	2	2	2	2
18	606644	Arm Shaft and N/B Crank Assembly	1	1	1	1	1
19	606484	Arm Shaft	1	1	1	1	
	601478	Arm Shaft					1
20	606478	N/B. Crank Assembly	1	1	1	1	1
21	606477	N/B Crank Posh. Screw	1	1	1	1	1
22	504066	Position Screw	1	1	1	1	1
23	504101	Crank Posh. Screw	1	1	1	1	1
24	606480	Bushing Set Screw	1	1	1	1	1
25	606481	Front Bush	1	1	1	1	1
26	541606	Bevel Gear Assembly	1	1	1	1	1
27	504066	Bevel Gear Set Screw	2	2	2	2	2
28	541607	Worm Gear Assembly	1	1	1	1	
	541607-308	Worm Gear Assembly					1
29	504028	Worm Gear Screw	2	2	2	2	2
30	606483	Feed Eccentric Assembly	1	1	1	1	1
31	606482	Feed Eccentric Screw	1	1	1	1	1
32	606482	Feed Eccentric Screw	1	1	1	1	1
33	606645	Retaining Ring	1	1	1	1	1
34	606480	Arm Shaft Bushing Screw	1	1	1	1	1
35	606485	Arm Shaft Bushing, back	1	1	1	1	1
36	606487	CSM Flanged Bushing	1	1	1	1	1
37	606488	CSM Bushing Set Screw	1	1	1	1	1
38	505009	CSM Clamp Washer	1	1	1	1	1
39	415763-383	CSM Clamp Screw	1	1	1	1	1
40	154756	CSM Clamp Stop Screw	1	1	1	1	
41	606489	Handwheel	1	1	1	1	
	601489	Handwheel					1
42	606420	Screw					2
43	606712	Retaining Collar Assembly	1	1	1	1	1
44	606713	Retaining Collar screw	2	2	2	2	2

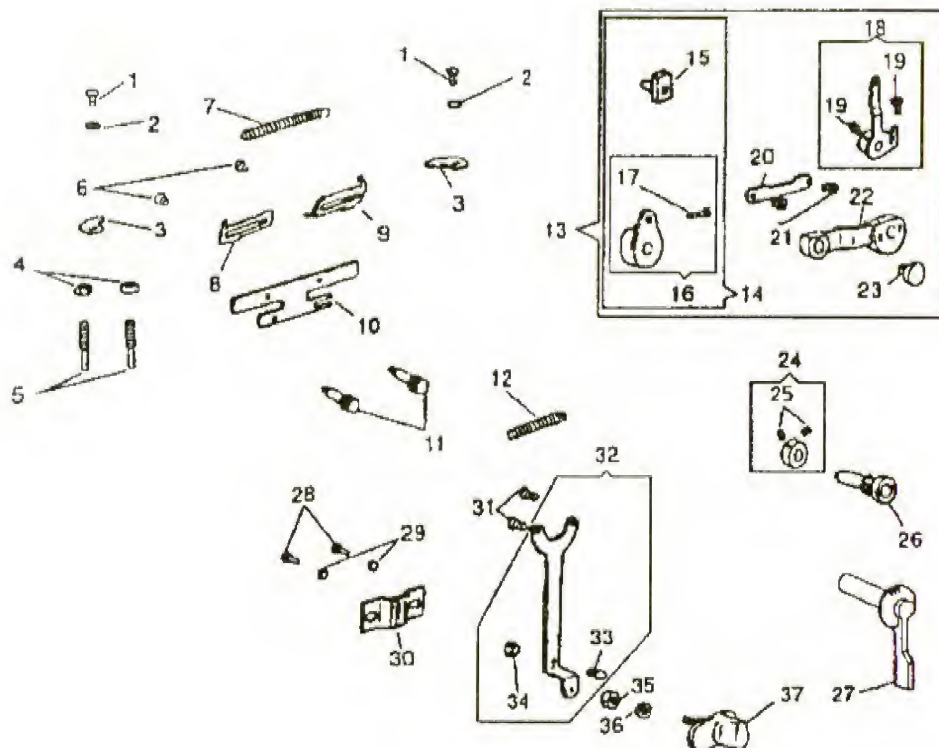
6.3. Needle Bar, Presser Bar and Throat Plate Components

No.	Part No.	Description	Quantity				
			109	109C	112	112C	309
1	606646	Needle Bar	1	1			1
2	606461	Needle Bar			1	1	
3	606463	Needle Clamp Screw	1	1	1	1	1
4	606647	Needle Bar Frame Assembly	1	1	1	1	1
5	606456	Needle Bar Frame	1	1	1	1	1
6	606458	Indicator Plate	1	1	1	1	1
7	606459	Indicator Plate Screw	2	2	2	2	2
8	606457	Exec. Pin Set Screw	1	1	1	1	1
9	606516	Set Screw	1	1	1	1	1
10	606460	N/B Frame Pin	1	1	1	1	1
11	GR466-8	Needle Bar Tread Guard	1	1			1
	GR252-8	Needle Bar Tread Guard			1	1	
12	1910-05	Needle (1910-05 #14)	1	1	1	1	1
13	606648	P/B Thumb Screw & Nut Assembly	1	1	1	1	1
14	606592	Presser Bar Thumb Screw	1	1	1	1	1
15	606649	Presser Bar Thumb Screw Nut	1	1	1	1	1
16	606594	Presser Bar	1	1	1	1	1
17	606593	Presser Bar Spring	1	1	1	1	1
18	606600	Presser Bar Bracket Assembly	1	1	1	1	1
19	606599	Screw	1	1	1	1	1
20	606601	Presser Bar Lifting Bracket	1	1	1	1	1
21	606650	Presser Foot Assembly	1	1			1
	606651	Presser Foot Assembly			1	1	
22	606444	Presser Foot Screw	1				
23	606652	Needle Plate	1	1			1
	606402	Needle Plate			1	1	
24	606403	Needle Plate Screw	1	1	1	1	1
25	606653	Bed Plate Assembly	1	1	1	1	1
26	606404	Bed Plate	1	1	1	1	1
27	606405	Bed Plate Spring	1	1	1	1	1
28	606401	Bed Plate Screw	2	2	2	2	2
29	606654	Slide Plate Assembly	1	1	1	1	1
30	606399	Slide Plate	1	1	1	1	1
31	606400	Slide Plate Spring	1	1	1	1	1
32	606401	Slide Plate Spring Screw	2	2	2	2	2

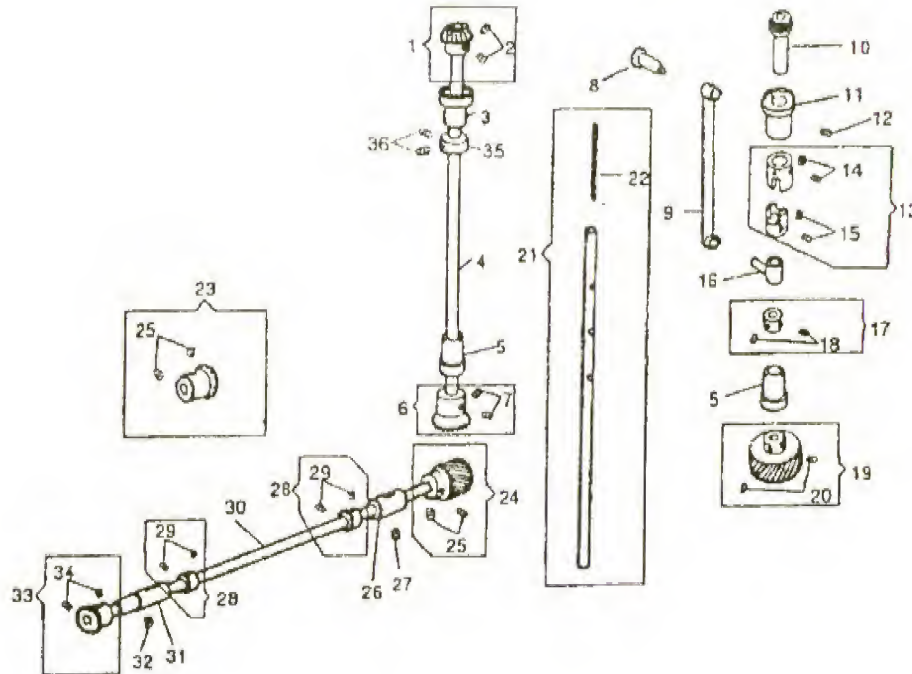
6.4. Zigzag Triangular Cam and Hook Advancing Crank Components



No.	Part No.	Description	Quantity				
			109	109C	112	112C	309
1	606420	Set Screw	1	1	1	1	
2	606539	Cam Shaft Assembly	1	1	1	1	
3	606655	Cam Shaft	1	1	1	1	
	606655-308	Cam Shaft					1
4	606656	Cam Shaft Oil Wick	1	1	1	1	
5	410031	Zig Zag Cam and Gear Assembly	1	1			
	410056	Zig Zag Cam and Gear Assembly			1	1	
6	606542	Cam Shaft Collar Assembly	1	1	1	1	
7	606541	Collar Set Screw	2	2	2	2	
8	606444	Screw	2	2	2	2	
9	606590	Spring Washer	2	2	2	2	
10	606589	Washer	2	2	2	2	
11	606588	Oil Felt	1	1	1	1	
12	606657	Oil Reservoir Assembly	1	1			
	606586	Oil Reservoir Assembly			1	1	
13	606658	Oil Wick	1	1	1	1	
14	606659	Oil Reservoir Bracket	1	1			
15	GW178-8	Spring					1
16	GR243	Rubber Cap					1
17	GZ222-9	Following Shaft					1
18	GC149-8	Leaning Gear					1
19	GS202-8	Sleeve Screw of Cam Assembly					1
20	GR461/2-8	Cam Assembly					1
21	GO226-8	Leaning gear Sleeve					1
22	GS166-8	Left-hand Screw					1
24	GS258-8	Screw of Drive Lever					1
25	GR458/3-8	Regulator Fork drive Lever Assembly					1
26	GS202-8	Washer Screw					1
27	GO164-8	Washer of Following Lever					1
28	GR460/-8	Following Lever Assembly					1
29	GS020	Screw of Following Lever					1
30	606664	Slide Block Cap Screw	1	1	1	1	1
31	606663	Zig Zag Stitch Reg. Fork	1	1			
	606538	Zig Zag Stitch Reg. Fork			1	1	
	606663-308	Zig Zag Stitch Reg. Fork					1
32	606545	Fork Eccentric Connection Pin	1	1	1	1	1
33	GS256-8	Screw of Locating Rack			1	1	
34	GS213-8	Set Screw of Locating Rack Sleeve			1	1	
35	GR390/2-8	Locating Rack Assembly			1	1	
36	GZ175-8	Differential Connecting Shaft			1	1	
37	GH210/3-8	Differential Crank Assembly			1	1	
38	GS216-8	Screw of Differential Connecting Bar			1	1	
39	GS217-8	Connecting Screw for Sliding Block			1	1	
40	GH179-8	Differential Connecting Shaft			1	1	
41	GO177-8	Resistor of Differential Connecting Shaft			1	1	
42	GS219-8	Screw of Differential Connecting Bar			1	1	

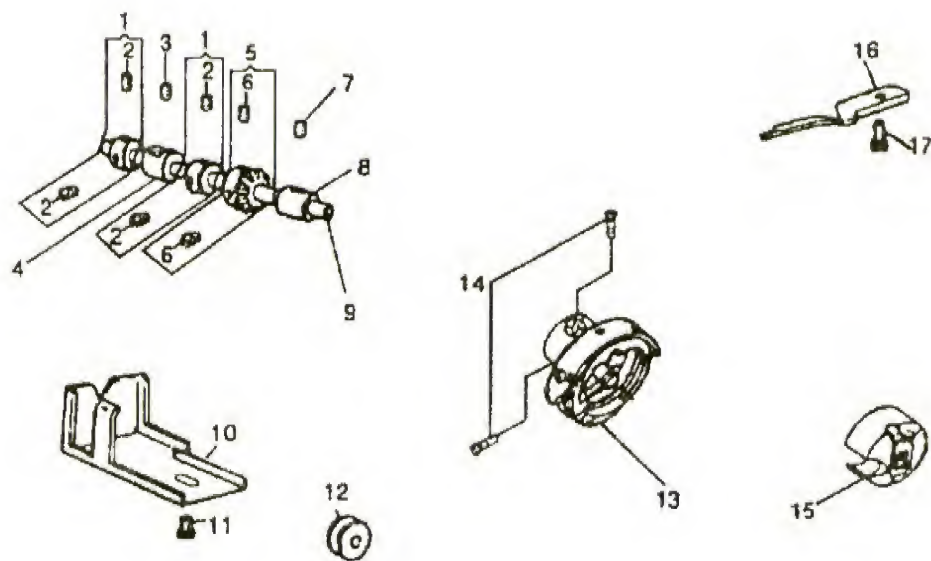
6.5. Bight Amplitude, Bight and L-C-R Position Components

No.	Part No.	Description	Quantity				
			109	109C	112	112C	309
1	606511	Screw	2	2	2	2	2
2	606571	Washer	2	2	2	2	2
3	606569	Stop Plate	2	2	2	2	2
4	606554	Lever Arm Reg. Screw Nut	2	2	2	2	2
5	606553	Lever Arm Reg. Screw	2	2	2	2	2
6	606572	Screw	2	2	2	2	2
7	606577	Spring	1	1	1	1	1
8	606575	Regulating Plate (left)	1	1	1	1	1
9	606576	Regulating Plate (right)	1	1	1	1	1
10	606574	Reg. Plate Holder	1	1	1	1	1
11	606573	Thumb Screw	2	2	2	2	2
12	606556	Spring	1	1	1	1	1
13	606665	Bight Amplitude Control Mech. Assembly	1	1			
	606666	Bight Amplitude Control Mech. Assembly			1	1	
14	606667	Slide Block & Guide Assembly	1	1			
	606668	Slide Block & Guide Assembly			1	1	
15	606546	Slide Block	1	1	1	1	
16	606669	Slide Block Guide Assembly	1	1			
	606547	Slide Block Guide Assembly			1	1	
17	606670	Guide Stud Set Screw	1	1	1	1	
18	606557	Slide Block Crank Assembly	1	1	1	1	
	606557-308	Slide Block Crank Assembly					1
19	606555	Slide Block Crank Set Screw	2	2	2	2	2
20	606549	Slide Block Crank Link	1	1	1	1	
	606549-308	Slide Block Crank Link					1
21	606671	Hinge Screw	2	2	2	2	2
22	606551	Position Lever Arm	1	1	1	1	1
23	606552	Guide Stud	1	1	1	1	1
24	606560	Collar Assembly	1	1	1	1	1
25	606518	Collar Set Screw	2	2	2	2	2
26	606562	Crank Shaft Bushing	1	1	1	1	1
27	554139-383	Crank Shaft Knob Assembly	1	1	1	1	1
28	606564	Position Block Screw	2	2	2	2	
29	606568	Position Block Screw Washer	2	2	2	2	
30	606673	Position Block	1	1			
	606563	Position Block			1	1	
31	606674	Position Lever Screw	2	2	2	2	
32	606566	Position Lever Assembly	1	1	1	1	
33	606565	Position Lever Screw Pin	1	1	1	1	
34	606675	Position Lever Screw Pin Nut	1	1	1	1	
35	606675	Thumb Stud Nut	1	1	1	1	
36	606676	Thumb Stud Spring Washer	1	1	1	1	
37	554140-383	Thumb Stud	1	1	1	1	

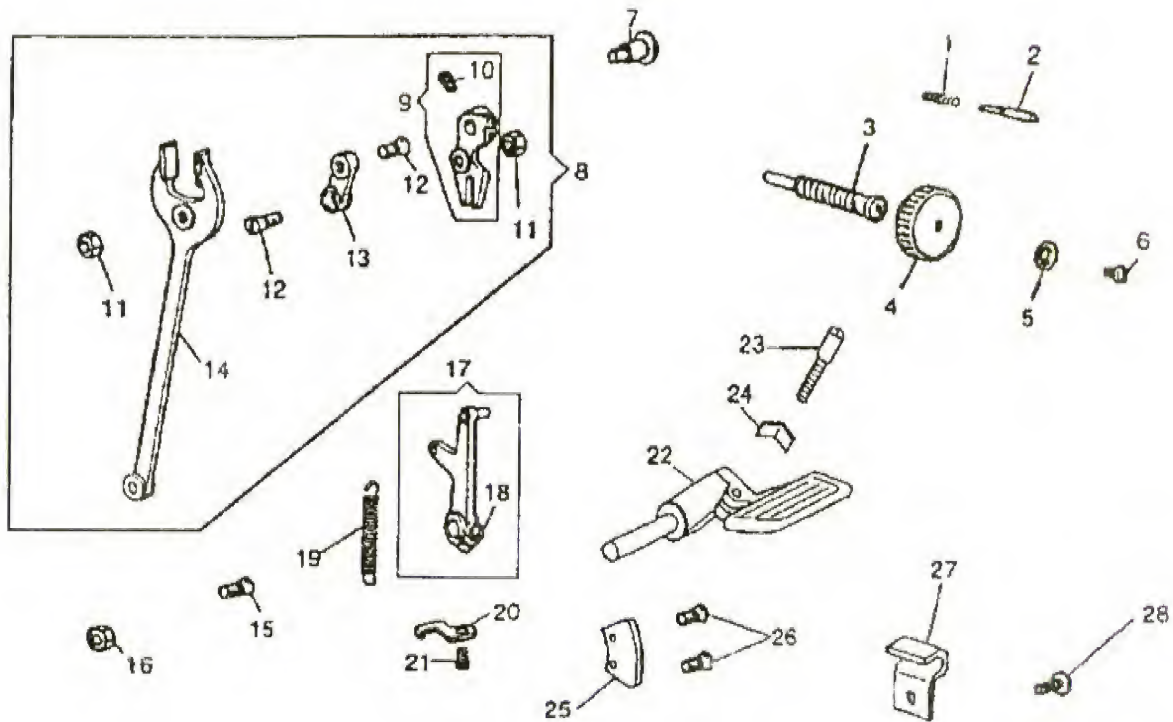
6.6. Arm Shaft (upright) and Rotating Hook Drive Shaft Components

No.	Part No.	Description	Quantity				
			109	109C	112	112C	309
1	541610	Bevel Gear Assembly	1	1			1
2	504101	Bevel Gear Set Screw	2	2			2
3	606677	Arm Shaft Bushing, upper	1	1			1
4	606678	Arm Shaft (Upright)	1	1			1
5	606527	Upright Bushing, lower	1	1	1	1	1
6	541609	Bevel Gear Assembly	1	1			1
7	504101	Bevel Gear Set Screw	2	2			2
8	606585	Connection Screw			1	1	
9	606536	Hook Advance Crank Connecting Rod			1	1	
10	606535	Bevel Gear			1	1	
11	606533	Upright Bushing, upper			1	1	
12	606534	Bushing Set Screw	1	1	1	1	1
13	606679	Clutch Sleeve Assembly			1	1	
14	504101	Clutch Sleeve Screw			2	2	
15	504101	Clutch Sleeve Screw			2	2	
16	606528	Connecting Stud			1	1	
17	606523	Retaining Collar Assembly			1	1	
18	504101	Retaining Collar Screw			2	2	
19	543914	Screw Gear Assembly			1	1	
20	504101	Gear Set Screw			2	2	
21	606537	Arm Shaft (Upright) Assembly			1	1	
22	606680	Arm Shaft Oil Wick			2	2	
23	541684	Bevel Gear Assembly	1	1			1
24	543944	Screw Gear Assembly			1	1	
25	504101	Screw Gear Set Screw	2	2	2	2	2
26	606681	Hook Drive Shaft Bushing	1	1			1
	606525	Hook Drive Shaft Bushing			1	1	
27	606420	Set Screw	1	1	1	1	1
28	606523	Retaining Collar Assembly	1	1			1
	606523	Retaining Collar Assembly			2	2	
29	504101	Retaining Collar Screw	2	2			2
	504101	Retaining Collar Screw			4	4	
30	606682	Hook Drive Shaft	1	1			1
	606526	Hook Drive Shaft			1	1	
31	606522	Hook Drive Shaft Bush	1	1	1	1	1
32	606420	Set Screw	1	1	1	1	1
33	541685	Bevel Gear Assembly	1	1	1	1	1
34	504101	Bevel Gear Screw	2	2	2	2	2
35	606523	Arm Shaft (Upright) Collar Assembly	1	1			1
36	504101	Arm Shaft (Upright) Collar Screw	2	2			2

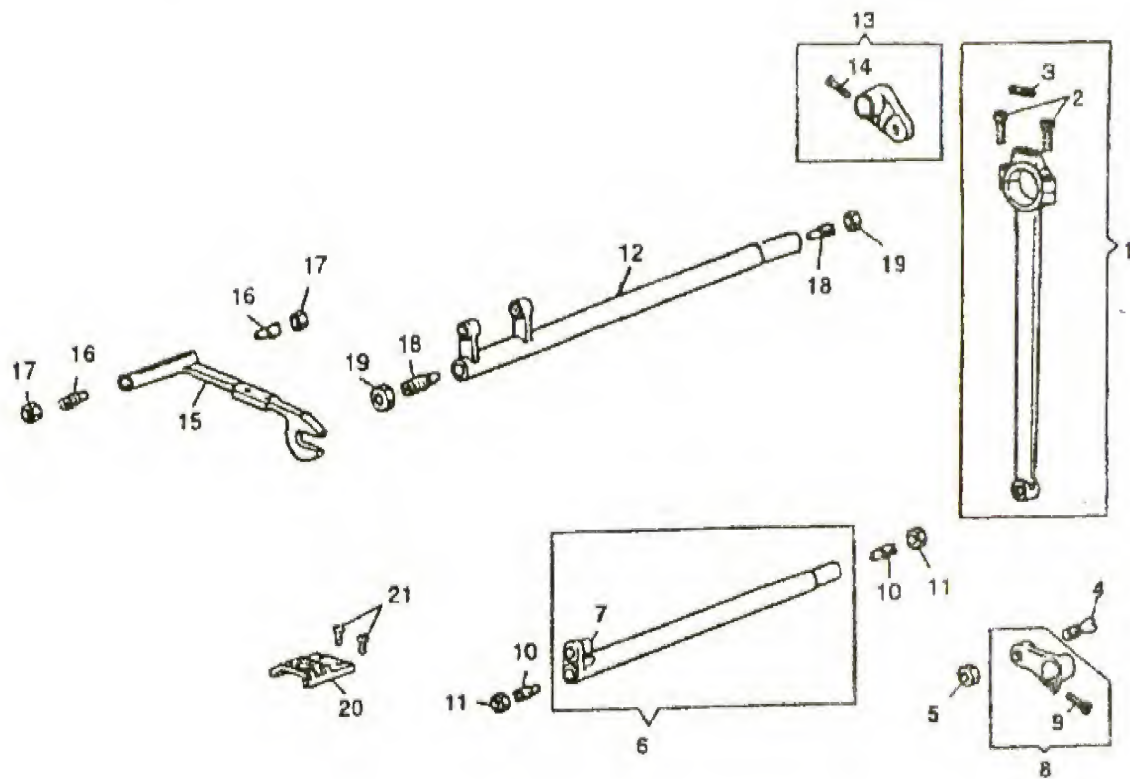
6.7. Hook and Bobbin Case Components



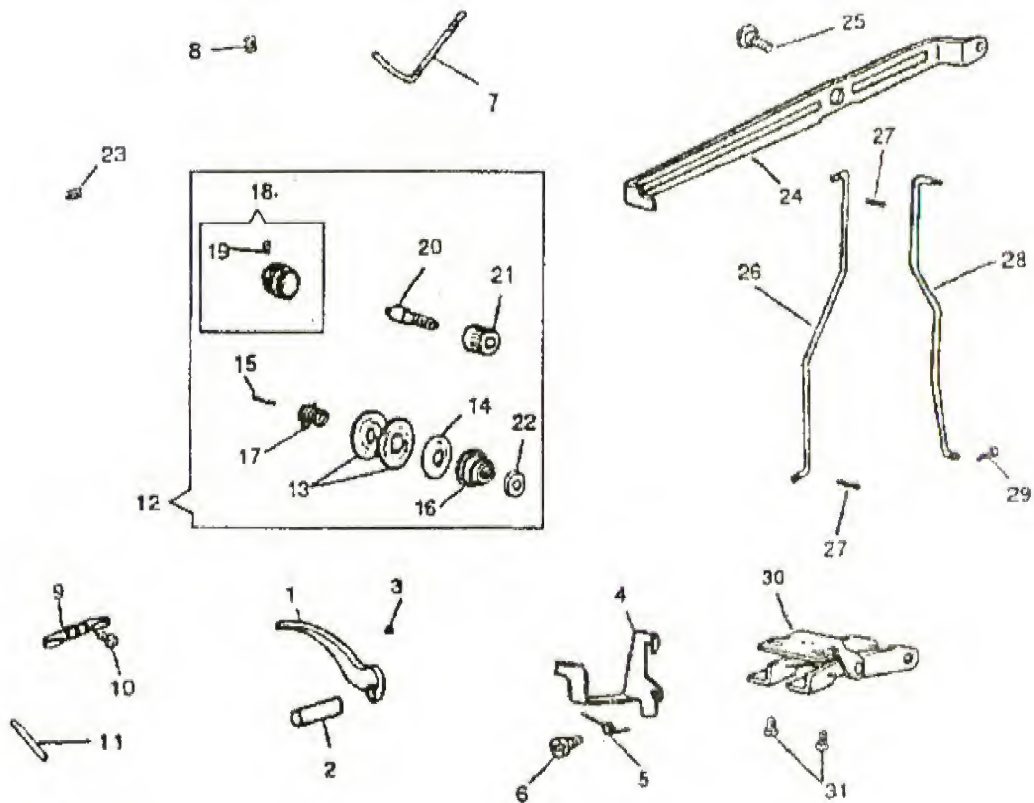
No.	Part No.	Description	Quantity				
			109	109C	112	112C	309
1	606517	Hook Shaft Collar Assembly	2	2	2	2	2
2	606518	Hook Shaft Collar Screw	4	4	4	4	4
3	606516	Set Screw	1	1	1	1	1
4	606519	Hook Shaft Bush, short	1	1	1	1	1
5	541689	Bevel Gear Assembly	1	1	1	1	1
6	504101	Bevel Gear Screw	2	2	2	2	2
7	606516	Set Screw	1	1	1	1	1
8	606515	Hook Shaft Bush, long	1	1	1	1	1
9	606520	Hook Shaft	1	1	1	1	1
10	606410	Gear Shield	1	1	1	1	1
11	606444	Screw	1	1	1	1	1
12	606513	Bobbin	1	1	1	1	1
13	606683	Rotating Hook Assembly	1				1
	606683C	Rotating Hook Assembly		1			
	606514	Rotating Hook Assembly			1		
	606514C	Rotating Hook Assembly				1	
14	606684	Rotating Hook Set Screw	2	2	2	2	2
15	606512	Bobbin Case Assembly	1	1	1	1	1
16	606510	Hook Position Finger	1	1	1	1	1
17	606511	Position Finger Screw	1	1	1	1	1

6.8. Feed Regulating Dial and Feed Reverse Lever Components

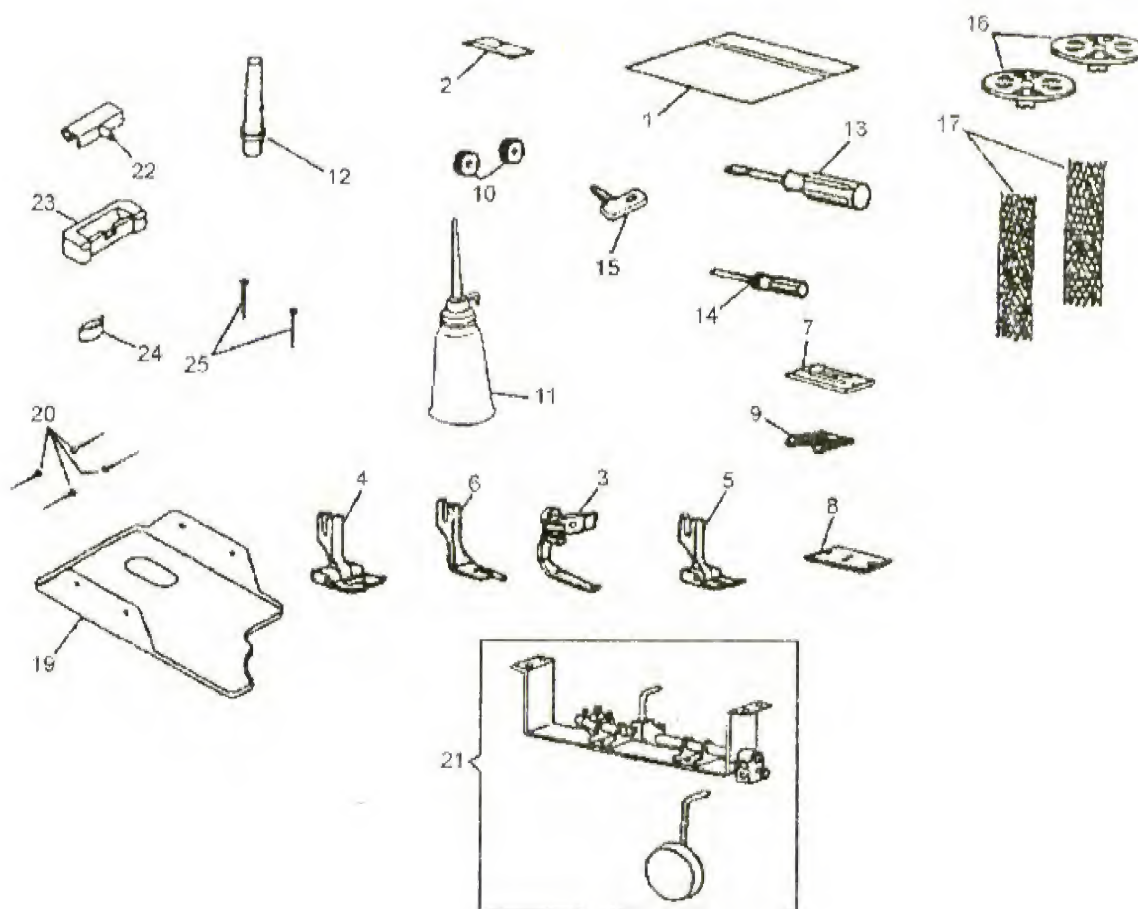
No.	Part No.	Description	Quantity				
			109	109C	112	112C	309
1	606618	Spring	1	1	1	1	1
2	606617	Stud Lock Pin	1	1	1	1	1
3	606609	Feed Regulating Stud	1	1	1	1	1
4	554138-383	Feed Regulation Dial	1	1	1	1	1
5	543803-004	Dial Screw Washer	1	1	1	1	1
6	544218-053	Dial Screw	1	1	1	1	1
7	606610	Hinge Stud	1	1	1	1	1
8	606685	Feed Regulator & Fork Comp	1	1	1	1	1
9	606611	Feed Regulator Assembly	1	1	1	1	1
10	606686	Screw	1	1	1	1	1
11	606494	Hinge Screw Nut	1	1	1	1	1
12	606496	Hinge Screw	2	2	2	2	2
13	606495	Feed Connecting Link	2	2	2	2	2
14	606509	Feed Fork Connection.	1	1	1	1	1
15	606496	Hinge Screw	1	1	1	1	1
16	606494	Hinge Screw Nut	1	1	1	1	1
17	606615	Reverse Lever Link Assembly	1	1	1	1	1
18	606434	Clamp Screw	1	1	1	1	1
19	606612	Spring	1	1	1	1	1
20	606614	Spring Bracket	1	1	1	1	1
21	606602	Screw	1	1	1	1	1
22	554131-467	Reverse Lever Assembly	1	1	1	1	1
	551131-467	Reverse Lever Assembly					
23	374564	Adjusting Screw	1	1	1	1	
24	554134	Adjusting Screw Friction	1	1	1	1	
25	554136	Indicator Plate	1	1	1	1	
26	504010-453	Indicator Plate Screw	2	2	2	2	
27	554135	Adjusting Screw Stopper	1	1	1	1	
28	544213-001	Stopper Set Screw	1	1	1	1	

6.9. Feed Mechanism Components

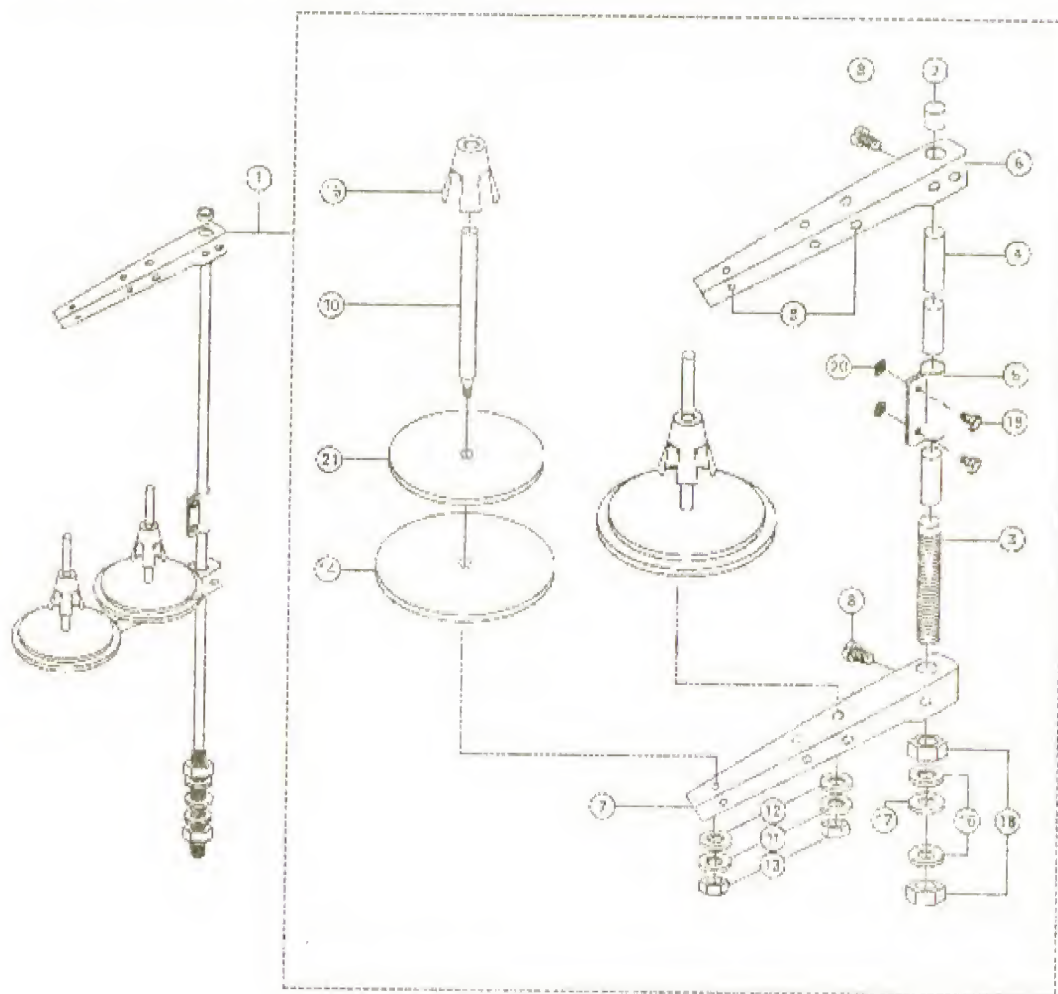
No.	Part No.	Description	Quantity				
			109	109C	112	112C	309
1	606493	Connecting Rod Assembly	1	1	1	1	1
2	606434	Connecting Rod Cap Screw	2	2	2	2	2
3	606492	Oil Felt	1	1	1	1	1
4	606496	Hinge Screw	1	1	1	1	1
5	606494	Hinge Screw Nut	1	1	1	1	1
6	606507	Feed Lifting Rock Shaft Assembly	1	1	1	1	1
7	606687	Roller and Stud	1	1	1	1	1
8	606508	Lifting Rock Shaft Crank Assembly	1	1	1	1	1
9	606500	Crank Clamping Screw	1	1	1	1	1
10	606497	Screw Center	2	2	2	2	2
11	606498	Screw Center Nut	2	2	2	2	2
12	606505	Feed Rock Shaft	1	1	1	1	1
13	606499	Feed Rock Shaft Crank Assembly	1	1	1	1	1
14	606500	Crank Clamping Screw	1	1	1	1	1
15	606506	Feed Bar	1	1	1	1	1
16	606503	Screw Center	2	2	2	2	2
17	606504	Screw Center Nut	2	2	2	2	2
18	606497	Screw Center	2	2	2	2	2
19	606498	Screw Center Nut	2	2	2	2	2
20	606688	Feed Dog	1	1			1
	606502	Feed Dog			1	1	
21	606501	Feed Dog Screw	2	2	2	2	2

6.10. Presser Bar Lifter and Thread Tension Components

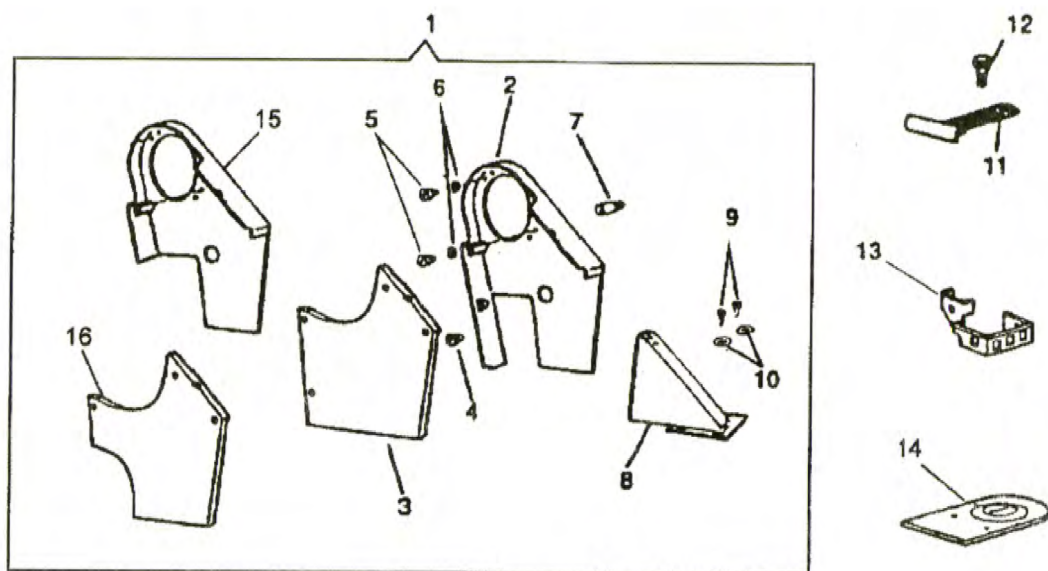
No.	Part No.	Description	Quantity				
			109	109C	112	112C	309
1	606598	Hand Lifter Lever	1	1	1	1	1
2	606597	Hand Lifter Lever Pin	1	1	1	1	1
3	606599	Screw	1	1	1	1	1
4	606413	Tension Release Lever	1	1	1	1	1
5	606412	Tension Release Lever Screw Spring	1	1	1	1	1
6	606411	Tension Release Lever Screw	1	1	1	1	1
7	410413	Thread Retainer	1	1	1	1	1
8	606518	Thread Retainer Screw	1	1	1	1	1
9	606416	Thread Guide	1	1	1	1	1
10	606444	Thread Guide Screw	1	1	1	1	1
11	606414	Thread Guard Pin	1	1	1	1	1
12	606689	Tension Assembly	1	1	1	1	1
13	606425	Tension Disc	2	2	2	2	2
14	606426	Tension Releasing Disc	1	1	1	1	1
15	606418	Tension Release Pin	1	1	1	1	1
16	606427	Tension Spring	1	1	1	1	1
17	606422	Thread Take-up Spring	1	1	1	1	1
18	606419	Tension Base Assembly	1	1	1	1	1
19	606421	Tension Securing Screw	1	1	1	1	1
20	606424	Tension Stud	1	1	1	1	1
21	606429	Thumb Nut	1	1	1	1	1
22	606428	Thumb Nut Washer	1	1	1	1	1
23	600420	Set Screw	1	1	1	1	1
24	606607	Lifting Lever	1	1	1	1	1
25	606608	Hinge Screw	1	1	1	1	1
26	606605	Connecting Rod	1	1	1	1	1
27	606604	Connecting Rod Pin	2	2	2	2	2
28	606606	Connecting Rod	1	1	1	1	1
29	606604	Connecting Rod Pin	1	1	1	1	1
30	606603	Bell Crank Assembly	1	1	1	1	1
31	606602	Screw	2	2	2	2	2

6.11. Accessories and Attachments

No.	Part No.	Description	Quantity				
			109	109C	112	112C	309
1	606690	Accessory Box	1	1	1	1	1
2	1910-05	Needle (1910-05 #14)	3	3	3	3	3
3	606691	Zipper Foot	1	1	1	1	
4	606692	Presser Foot Assembly (for Button Holing)	1	1	1	1	
5	606693	Presser Foot Assembly (for Straight Stitching)	1	1	1	1	
6	606694	Hemmer Foot Assembly	1	1	1	1	
7	606695	Needle Plate (for Straight Stitching)	1	1	1	1	
8	606696	Needle Plate (for Embroidery)	1	1	1	1	
9	606697	Feed Dog (for Straight Stitching)	1	1	1	1	
10	606513	Bobbin	2	2	2	2	2
11	606698	Oiler	1	1	1	1	1
12	606699	Machine Rest Pin	1	1	1	1	1
13	606700	Screw Driver(large)	1	1	1	1	1
14	606701	Screw Driver(Small)	1	1	1	1	1
15	606702	Screw Driver(for Needle Plate)	1	1	1	1	
16	606703	Thread Unwinder Spool Cap	2	2	2	2	
17	606704	Thread Unwinder Spool Net	2	2	2	2	
19	606706	Drip Pan	1	1	1	1	1
20	606707	Drip Pan Nail	4	4	4	4	4
21	606708	Knee Lifter Assembly	1	1	1	1	
	GR759/25-8	Knee Lifter Assembly					1
22	606709	Machine Hinge	2	2	2	2	1
23	606710	Machine Hinge Cushion	2	2	2	2	1
24	606711	Machine Cushion	4	4	4	4	1
25	606707	Nail	6	6	6	6	1

6.12. Thread Stand Components

No.	Part No.	Description	Quantity
1	1013100900	Thread stand assembly	1
2	10122028	Rubber cap	1
3	10131008	Spool post (lower)	1
4	10131009	Spool post (upper)	1
5	10112039	Spool post joint	1
6	10112040	Spool arm (upper)	1
7	10112041	Spool arm (lower)	1
8	S04013	Screw	2
9	10113010	Thread guide	2
10	10131010	Spool pin	2
11	10128009	Spring washer	2
12	10128002	Washer	2
13	101S16006	Nut	2
14	10111013	Spool rest	2
15	10111014	Spool retainer	2
16	10128010	Washer	2
17	10128006	Spring washer	1
18	N02003	Nut	2
19	10104003	Screw	2
20	101S11020	Nut	2
21	10102009	Spool rest cushion	2

6.13. Belt Cover Components and Extra Parts

No.	Part No.	Description	Quantity				
			109	109C	112	112C	309
1	281840-383	Belt Cover Assembly	1	1	1	1	1
2	281833-383	Belt Cover (Upper)	1	1	1	1	
3	281834-383	Belt Cover (Upper) Cover	1	1	1	1	
4	549116	Belt Cover (Upper) Screw	1	1	1	1	1
5	504063-451	Belt Cover (Upper) Screw	2	2	2	2	2
6	543875-104	Belt Cover (Upper) Screw Washer	2	2	2	2	2
7	544241	Belt Cover (Upper) Screw Stud	1	1	1	1	1
8	281835-383	Belt Cover (Lower)	1	1	1	1	1
9	549398	Belt Cover (Lower) Wood Screw	2	2	2	2	2
10	543803-003	Belt Cover (Lower) Wood Screw Washer	2	2	2	2	2
11	541515-001	Cloth Guide	1	1	1	1	
12	504030	Cloth Guide Thumb Screw	1	1	1	1	
13	281822	Finger Guard	1	1	1	1	
14	410076	Needle Plate Assembly (for Embroidery)			1	1	
15	281833-308						1
16	281834-308						1

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